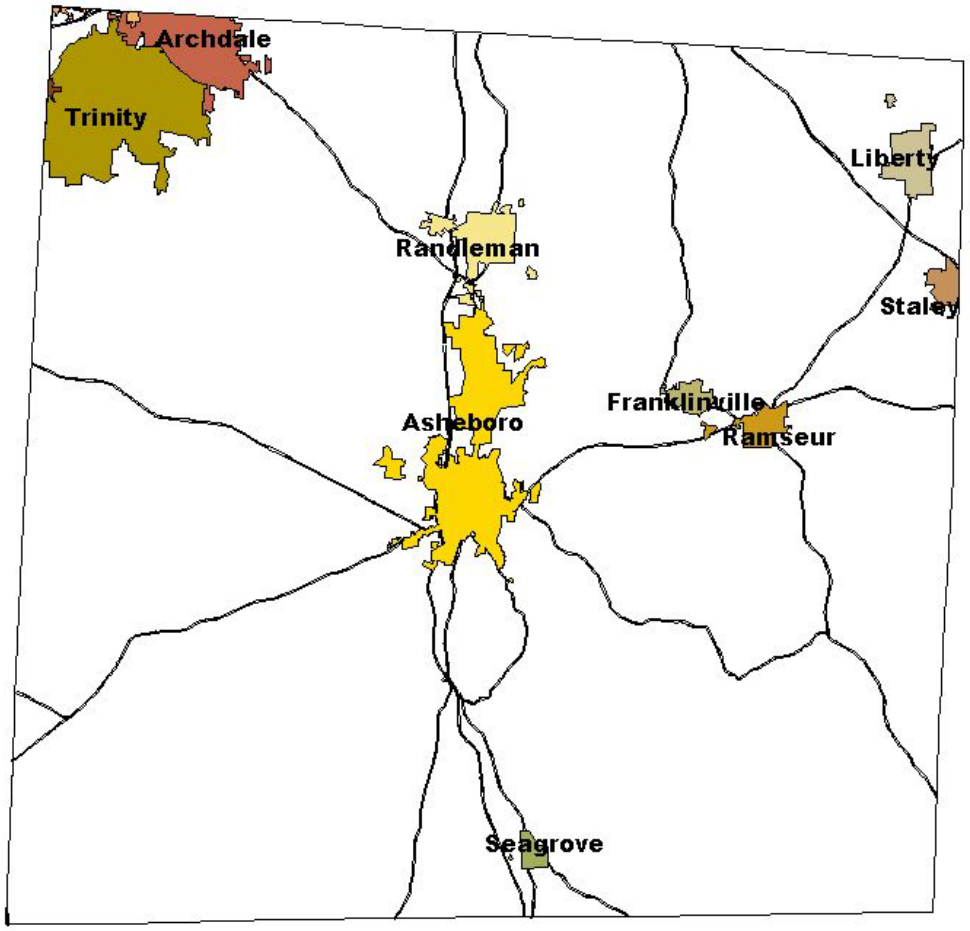
Randolph County



Multi-Jurisdictional Hazard Mitigation Plan

FINAL

August 2004

Developed and Submitted by :

Piedmont Triad Council of Governments
2216 West Meadowview Road, Suite 201
Greensboro, NC 27407

Randolph County

Multi-Jurisdictional Hazard Mitigation Plan

Randolph County

City of Archdale

City of Asheboro

Town of Franklinville

Town of Liberty

Town of Ramseur

City of Randleman

Town of Seagrove

Town of Staley

City of Trinity

Prepared by

Piedmont Triad Council of Governments
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Staff

Paula Sloneker, Special Projects Analyst

GIS Mapping provided by
Tim Mangum, Planning Information Specialist, Randolph County

This Multi-Jurisdictional Hazard Mitigation Plan was made possible through a Hazard Mitigation Grant from the Federal Emergency Management Agency (FEMA).

Randolph County
Multi-Jurisdictional Hazard Mitigation Plan

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~~Resolutions for Adoption~~

Randolph County Multi-Jurisdictional Plan

Introduction

The Randolph County Multi-Jurisdictional Hazard Mitigation Plan was developed in collaboration with Randolph County Planning Department, Department of Emergency Management, Public Works, Representatives from the Cities of Archdale, Asheboro, Randleman, and Trinity, and the towns of Franklinville, Liberty, Ramseur, Staley and Seagrove

The working group meetings were open to the general public. Phase I, which included the hazard profile, vulnerability assessment and assessment of local capability, was distributed to all town/city halls, county office building, and public libraries for public review. The first public meeting was held to discuss and review the Phase I document as the findings set the foundation for developing mitigation strategies which would address the unique hazards, concerns of the County and municipal jurisdictions

PHASE I of the multi-jurisdictional hazard mitigation plan included identifying and profiling hazards impacting Randolph County and all municipal jurisdictions, determining the likelihood of occurrence, and expected level of impact [See Appendix A]. The hazard profile provides a comprehensive look at nine natural hazards and when possible, analyzes information pertaining to all natural hazard events which took place in Randolph County and its municipalities over the last fifty years.

Through the vulnerability assessment, the geography of the county and municipalities was considered in determining which areas are more vulnerable to specific natural hazards or if the natural hazard had an equal chance of occurring throughout the entire county. Vulnerable populations, growth management designations, population growth trends and locations of past hazards were analyzed to determine priority areas for development of mitigation strategies [See Appendix B].

Finally, the Section on Local Government Capability assesses and evaluates the legal authority, and local capability to carry out mitigation activities. [Appendix C]

Phase II of the plan development included establishing values and choosing goal statements, choosing strategies appropriate to each jurisdictions situation, and detailing how the plan will be implement, monitoring, evaluated, reviewed and updated if necessary.

Organization of Document:

Section I of the plan describes the planning process, the participants, and the purpose of the plan. Further, it outlines key findings in the analysis of the hazard profile and vulnerability assessment. These findings provided the basis for choosing mitigation strategies specific to the County and each municipality.

The core of the plan is contained in Section II Hazard Mitigation Strategies, which outlines the consensus goals developed by the county and the municipalities and the strategies that will be implemented by the County and each municipality to reduce or

eliminate exposure to natural hazards. Strategies were developed for each municipality based on geographic hazards within their jurisdiction, vulnerability, and local capability. The comprehensive assessment conducted in Phase I provided that information.
Section II of the plan includes ten subsections the County and the nine municipalities and describes the objectives and strategies for each individual jurisdiction. Many of the strategies that are to be adopted and implemented for unincorporated Randolph County will cover each jurisdiction also.

Each subsection will:

1. Identify the jurisdiction
2. Briefly describe the major concerns for the jurisdiction
3. Identify mitigation objectives and strategies
4. Describe implementation
5. Describe the Monitoring, evaluating and reporting process, and
6. Include a provision to allow for revisions and updates within individual jurisdictions so long as such revisions and updates do not affect any other jurisdiction

Purpose of the Plan

The purpose of the Randolph County Multi-Jurisdictional Hazard Mitigation Plan is to:

- Identify hazards,
- Develop a historic profile of natural disaster events,
- Assess county and municipal hazard risk and vulnerability, and
- Identify and promote mitigation efforts.

Mitigation efforts are sustained actions that will reduce or eliminate long-term risk to people and property from impacts of natural hazards or disasters. Any action taken before, during, or after a disaster event that makes structures, buildings, and communities resilient and minimizes the impact on the affected population community, built environment, and businesses can be a mitigating activity.

Statement of the Problem

In order to reduce the cost to the federal government of relief, recovery, and reconstruction after natural disasters, as well as to save lives, the Federal Emergency Management Agency (FEMA,) through authorizing legislation of Congress, administers programs, such as the National Flood Insurance Program, to offset the rising costs of disaster relief and assistance. In addition, after a Presidential Disaster Declaration, federal loans and assistance in the form of Small Business Administration (SBA) Disaster Loans, US Department of Agriculture disaster program grants and Housing and Urban Development (HUD) Community Development Block Grants (CDBG funds) are made available to local communities. Still, the costs of federal disaster relief have been escalating as the federal government increasingly takes financial responsibility when state and local governments are unable to meet the needs of their communities in the event of a disaster. At times, disaster aid has been repeatedly applied to recovery and reconstruction of property and structures in the same manner and same hazardous location as they were before the disaster occurrence.

Most of the losses from natural disaster events can be traced to changes in population behaviors and characteristics of development. With increased populations exposed to hazards and the growing complexity of urban systems, there is more to lose in natural disaster events. FEMA continues to strongly promote hazard mitigation as the only sensible long-term solution toward building for a safer future. However, in many policy areas dealing with effective mitigation activities, it is the states and localities that have the constitutional authority to adopt and implement these mitigation tools. States and localities are responsible for land use planning, regulation of building codes and construction practices, protecting local water supplies, and ensuring street access in emergencies. In addition, local government better knows the needs of their community, its resources, and specific hazards they face.

Finding a way to balance economic development objectives, as well as the need to protect the public, property and the environment, is difficult. The capacity and commitment of local government are major factors in whether or not mitigation tools will be effectively used. Local government capacity refers to the amount of resources and technical expertise available to the community. Commitment refers to the willingness of

local officials and elected leaders to advocate for hazard mitigation. This multi-jurisdictional hazard mitigation plan is a first step in building local capacity for dealing with natural disasters.

FEMA and NCDEM Mandate

Federal Disaster Mitigation Act of 2000 and NCGA Senate Bill 300 require all local governments to have a Hazard Mitigation Plan approved by FEMA and adopted by *November 2004*. Failure to adopt a plan means there will be no state, federal funding or public assistance in the event of a natural disaster.

Acceptable Risk

Through careful analysis of these documents, the following natural hazards were determined to present minimal hazard risk and therefore have an acceptable risk:

- Landslide – possible, low impact, high occurrence confined to region designated as rural growth management area.
- Earthquake – Epicenter likely in Charleston South Carolina area. Fault may produce tremors in region up to 7.5 on Richter scale, however, likelihood of occurrence is low, although an occurrence could have significant impact on structural integrity of dams.
- Heat wave – likely, low impact
- Wildfire – highly likely, low impact

Natural Hazards of Concern

Natural hazards of immediate concern in developing mitigation goals, objectives and strategies are for Randolph County and its municipal jurisdictions may include:

High Wind Hazards

- Countywide vulnerability.
- Signage, mobile homes, manufactured homes and modular classrooms especially vulnerable
- Includes tornadoes, all tropical and extra tropical cyclonic systems, and severe thunderstorms. High winds are actually one element in these multi-hazard events characterized by wind, hail, lightning, rain and flood.
- Wind speeds will most likely be between 38 to 90 mph. Wind speeds greater than 90 mph are possible especially with tornadoes, however, mitigation strategies will be aimed at reducing the impacts of wind speeds up to 90 mph.
- Multiple yearly occurrences are likely.
- Damage to roofs, power lines, and trees with severe injury or death possible.

Winter Storms

- Countywide vulnerability, including all municipalities.
- Impact: Critical facilities shut down for up to two weeks. Major power outages to facilities and service dependent upon electricity for operations.
- ***Ice storms*** produce most damage to trees, power lines, and buildings through snow loading and ice accumulation.

Flood

5.1% of Randolph County's total population lives in 2,539 occupied units at a value of $208,716,795 which are located in a designated special flood hazard area (SFHA). The total population exposed to a flood hazard totals 6,549. There are no floodplains located in the towns of Liberty, Seagrove, and Staley.

- **Priority vulnerable areas**: Archdale, Asheboro, Franklinville, Trinity, and portions of Northeast and northwest Randolph County.
    - **Northwest Randolph County**: 478 occupied units in flood zone at a structure value of $36 million. 1252 persons exposed to flood hazard.
        - Caraway creek floodplain has over 22 single-family homes in floodplain valued at approximately $3 million.
        - Uwharrie River and Little Uwharrie River floodplains have 41 occupied units in floodplains at a structure value of $1.7 million. Of these 23 are mobile homes.
    - **Northeast Randolph County**: 431 Occupied units in floodplain at structure value of $33 million. 1124 persons exposed to flood hazard.
        - Priority area: Deep River Floodplain (wicker Lovell road, Franklin Road, James Ray Dr., Glenn Rich Lane, Cedar Falls area) has seven residential homes, five mobile homes, commercial and industrial structures in floodplains. Structure value exceeds $3.3 million.
    - **Asheboro:** Policies in force as of 12/31/2002: 19 Insurance in force whole dollar: $1.9 million.
        - Pennwood branch floodplain has highly vulnerable population and public housing locate in floodplain
        - Block group 304011 area has 100 occupied housing units including mobile homes in floodplains. Value of structures exceeds $6 million.
    - **Archdale:** Policies in force as of 12/31/2002: 21; Insurance in force whole dollar: $2 million.
        - Value of all existing structures (residential, commercial and industrial) within Archdale located in floodplain exceeds $17 .7 million.
        - 38 single-family residential structures currently being built in floodplains. Value of these structures is undetermined at this time.
    - **Trinity:** Not NFIP member; flood insurance currently not available to citizens in Trinity.
        - Southwest Trinity has over 691 persons exposed to flood hazards in 256 occupied units in floodplains at an estimated structure value of $22 million.
    - **Franklinville:** NFIP member; no policies in force
        - Over 37 occupied units at a value of $2 million in floodplains leaving 70 persons exposed to flood hazards. Of these, 17 are mobile homes. Town hall is not in an identified flood zone however, it is prone to nuisance flooding. Emergency access may be compromised during flood events.
    - **Randleman:** NFIP member; 1 policy in force

- **Ramseur**: NFIP member; currently has B level ordinance which is not in compliance with current NFIP standards. No policies in force

Dam Failure Hazard

- Randolph County has 199 dams scattered throughout the county (139 low hazard, 37 intermediate hazard dams, and 23 high hazard dams.)
- While the likelihood of dam failure is low, a high hazard dam failure would cause catastrophic damage and result in death.
- **Priority vulnerable areas are:**
  - **Archdale:** Two high hazard dams with development downstream
  - **Franklinville:** Ramseur Water supply dam and Randolph Mill dam in need of maintenance. These dams would directly impact the town of Franklinville and the structures located within the floodplains. Currently there is no emergency supply water source for Franklinville and Ramseur.
  - **Randleman:** Main concern is the new Randleman Dam project. Though Randleman Lake is not filled, dam construction is completed. There are reported cracks in the dam in unexpected areas. Emergency Plans have not been developed and are not required until the dam is filled in 2005. Downstream development would be catastrophically impacted if the dam failed. Though the proposed lake area is known and mapped, floodplains surrounding the lake area have not been determined. The buffer area around the lake is to be 200 feet. The hazard mitigation plan will need to be revised and updated as more becomes known about the condition of the dam and as the project moves forward.
  - **Ramseur:** The Ramseur Water supply dam is in need of maintenance. Dam failure would catastrophically impact the town of Franklinville and also disrupt all water supplies to Ramseur and Franklinville.
  - **Trinity:** Two high hazard dams within city limits
  - **Northwest Randolph County:**
    Beard Lake dam is in the vicinity of the caraway creek floodplain. This neighborhood is vulnerable to both flood hazard and dam failure.

Sinkhole/Subsidence - Subsidence is the sudden (e.g., over two hours) or gradual downward movement of the ground surface (e.g., dropping by a few inches over a number of years.)

- The greatest potential for subsidence exists over abandoned underground mines, tunnels or shafts which includes gold mines. Tunnels and shafts may extend for hundreds of feet horizontally and vertically underground. There are over 33 abandoned gold mines with underground workings scattered throughout the County. The exact location of the mines and the extent of underground workings are unknown.
- Northwest Randolph County is a high concern area since it has multiple large mines scattered throughout the quadrant in areas designated as primary and secondary growth areas likely to be developed.

Repetitive Loss Structures:

Randolph county and its municipalities have no recorded repetitive loss structures.

Participants in the Planning Process

This Multi-Jurisdictional Hazard Mitigation Plan was developed through the efforts of individuals representing the county and each municipality. To date the participants have included:

County Representatives

Frank Willis	County Manager
Neil Allen	Director, Emergency Management
Donovan Davis	Assistant Director, Emergency Management
Hal Johnson	Planning Director
Jay Dale	Planning Department
Randle Brim	Planning Department
Paxton Arthurs	Inspections Director
Tim Mangum	GIS Specialist, Planning Department
David Townsend	Public Works Director
Rick Davis	Fire Marshal
Mike Walker	Environmental Health
Litchard Hurley	Sheriff
Larry Pugh	Chief, Ash-Rand Rescue & EMS (USAR – Urban Search & Rescue)
Lynne Qualls	NC Cooperative Extension Director
Rick Davis	

Randolph County Schools Representatives:

Bob Scherer	Facilities Director
Duke Grimstead	Facilities Department

Archdale Representatives

Gary Parker	City Manager
Martin Myers	Planning Director
Jeff Wells	Planning Department
Larry Brower	Guil-Rand Fire Dept Fire Chief
Mike Shuler	Public Works & Utilities Superintendent

Asheboro Representatives

John Ogburn	City Manager
Reynolds Neely	Planning Director
Mike Mize	Asheboro City Schools, Facilities Director
James W. Smith II	Fire Chief
Tim Allred	Fire Department
Larry Trotter	Chief Inspector
Dumont Bunker	City Engineer
Melvin Allen	Water Resources Director
Mike Jones	
Rusty A. Turner	Safety Coordinator
Bobby Kivett	Public Works Department

Franklinville Representative

Nancy Granger	Town Clerk

Liberty Representatives

Chad Howell	Manager
Roby Woods	Public Works Director
J.R. Beard	Fire Chief

Ramseur Representatives

Freida Waisner	Town Clerk
Leslie Thompson	Zoning Enforcement Officer

Randleman Representatives

David Cotton	Manager
Marty Leonard	Fire Chief
Greg Patton	Planning Director

Seagrove Representative

Cathy McCaskill	Clerk

Trinity Representatives

Anne Baille	Town Manager

Description of the Planning Process

Phase I: March 2003 through July 2003

- Includes initial contact and identification of steering committee members for participation in plan development. PTCOG held meetings with both the steering committee and county and municipal personnel **from each jurisdiction (i.e., Archdale, Asheboro, Franklinville, Liberty, Ramseur, Randleman, Seagrove, Staley and Trinity)** to obtain data and information pertaining to each localities unique profile.

- PTCOG collected data for hazard profile for county and **each municipal jurisdiction;** developed report on natural hazard history in Randolph County and all municipalities.

- Conducted a vulnerability assessment; PTCOG **worked with County Planning and Emergency Management as well as with the town/city managers or town clerks in each jurisdiction** to develop maps determining location of critical facilities, maps of hazard risk areas, and locations of vulnerable populations. Determined priority areas by identifying locations where hazard risk areas intersected with vulnerable populations.

- Assessed local government capability including local government authority, and technical capabilities. **As required, reviewed existing ordinances, regulations, studies, reports and land use plans for elements related to hazard mitigation for Randolph County, Archdale, Asheboro, Franklinville, Liberty, Ramseur, Randleman, Seagrove, Staley and Trinity.** See Local Capability Assessment, Appendix C, p. 8-22. Identified key personnel in local governments.

- Completed write up of Phase I of Randolph County Multi-Jurisdictional Hazard Mitigation Plan and submitted to Steering Committee members, city and town managers, and council members

- **Placed Phase I of plan in libraries and in county and <u>all</u> municipal town/city halls for public review and comment** in preparation for pre-draft public meeting to be held in late July or early august.

- PTCOG met with steering committee to plan and advertise for public meeting.

- Held first Pre-Draft Public Meeting with the public at large for review and comments.

Phase I meeting summaries:

Steering Committee Meeting: March 19, 2003

Attendees: *Randolph County – Tim Mangum, Jay Dale, Neil Allen, Donovan Davis, Hal Johnson, Randle Brim, Rick Davis, Bob Scherer, Duke Grimstead, Paxton Arthurs; Asheboro – John Ogburn, Dumont Bunker, Melvin Allen, Mike Jones, Reynolds, Neely, Mike Mize, Tim Allred, Jim Smith, Rusty Turner, Bobby Kivett; Archdale – Jeff Wells, Martin Myers; Franklinville – Nancy Granger; Liberty – Chad Howell; Ramseur – Frieda Waisner; Randleman – David Cotton, Greg Patton; Ash-Rand Rescue Squad - Tommy McNeill; NC Cooperative Extension - Lynn Qualls; PTCOG – Paula Sloneker, Ginger Booker*

Presentation by Anne Morris, Hazard Mitigation Planner, North Carolina Department of Emergency Management

Review of hazard profile for Randolph County, Asheboro, Archdale, Franklinville, Liberty, Staley, Seagrove, Randleman, Ramseur, and Trinity. Group input into hazard occurrences throughout the county to supplement data from North Carolina Division of Climatic Data, National Weather Service and other sources for historical occurrences of natural hazard events.

Received contact information of persons who would have supplementary information for the hazard mitigation plan.

Steering Committee Meeting: April 22, 2003.

Attendance: *Randolph County – Tim Mangum, Jay Dale, Neil Allen, Donovan Davis, Hal Johnson, Rick Davis, Bob Scherer, Duke Grimstead, Paxton Arthurs; Asheboro – Reynolds Neely, Mike Mize; Archdale – Jeff Wells, Martin Myers; Franklinville – Nancy Granger; Liberty – Chad Howell, J. R. Beard; Randleman – David Cotton, Greg Patton; NC Cooperative Extension - Lynn Qualls; PTCOG – Paula Sloneker.*

Reported on status of hazard profile and historical findings. Discussed county and municipal vulnerability. Attendees defined critical facilities as “

Discussion on risk and vulnerability mapping. To work mainly with County GIS specialist in development of critical facility maps and hazard risk area maps. Discussed geographic planning areas and strategy for identifying areas of primary focus.

Steering Committee Meeting: July 22, 2003

Attendees: *Randolph County – Tim Mangum, Jay Dale, Neil Allen, Donovan Davis, Hal Johnson, David Townsend, Rick Davis, Bob Scherer, Duke Grimstead, Paxton Arthurs; Asheboro – John Ogburn, Dumont Bunker, Reynolds Neely; Archdale – Jeff Wells, Martin Myers; Franklinville – Nancy Granger; Liberty – Chad Howell, J. R. Beard; Ramseur – Frieda Waisner; Randleman – Greg Patton; Trinity – Anne Baille; PTCOG – Paula Sloneker.*

Reviewed draft plan and received comments, corrections to Phase I document. First public meeting will be held Thursday, August 21, 2003 at 6:30 pm in the Commissioners Meeting Room, Randolph County Administration building.

Notices and announcements of meeting will be posted through Time Warner Cable local access channel, newspaper advertisements, and town bulletin board. Notice will also be sent to the Economic Development Commission and the Chamber of Commerce. Each county and municipal representative will be responsible for informing his or her town council or commissioners at least 48 hours in advance of the scheduled public meeting.

Twenty-two full color copies of Phase I draft document will be distributed to all local libraries and town halls for public review.

Presentation at the public meeting will focus on hazard mitigation in general and a discussion of specific county and municipal vulnerabilities.

Goal development primers and interim conclusions were distributed in preparation for Phase II.

Next steering committee meeting to begin Phase II will be held Tuesday, August 26, 2003, 9:30 am in the County Administration building.

First Public Meeting: August 21, 2003

The first public meeting was advertised in the local newspapers, and posted on City, Town, and County bulletin boards and calendars. Twenty-two copies of the draft hazard profile, vulnerability assessment and local capability assessment were distributed to the public libraries and town/city halls.

Public meeting was held at 6:30 pm in Commissioners meeting room. The meeting included a PowerPoint presentation summarizing the findings and conclusions of the comprehensive county and municipal assessments. Questions by the public to gain further clarification and explanation were answered, although no recommendations or suggestions for changes to the document were put forth.

Phase II August – November 2003

- Develop vision and goals
- Develop criteria for policy selection
- Develop corresponding mitigation strategies
- Assign implementation responsibilities
- Determine mechanisms for monitoring and evaluating progress
- Determine mechanism for continued revisions and updates of this living document
- Hold second public meeting

- Submit Randolph County Hazard Mitigation Plan to the North Carolina Division of Emergency Management for review and comments

Phase II meetings:

Steering Committee Meeting: August 26, 2003

Attendees: *Randolph County – Tim Mangum, Jay Dale, Neil Allen, Donovan Davis, Hal Johnson, Rick Davis, Bob Scherer, Asheboro – John Ogburn, Reynolds, Neely; Archdale – Jeff Wells; Franklinville – Nancy Granger; Ramseur – Hampton Spivey; Seagrove - Melody Martinez, Bobby M.; Liberty – Chad Howell, J.R. Beard; Ramseur – Frieda Waisner; Randleman – David Cotton, Greg Patton; Trinity – Anne Baille; Ash-Rand Rescue Squad – Larry Pugh; PTCOG – Paula Sloneker*

Identified five goal areas and developed goal statements that were accepted by the County and all municipalities. Began general discussion of strategies. A decision was made to proceed by setting meetings dates for the lead planner to meet with each jurisdiction separately to identify goals and strategies specific to the hazards and risks associate with their geographic area and within their jurisdiction.

Strategy Development Meetings: Conducted with small groups throughout September 2003

- Randolph County strategy development participants: Planning Director, Emergency Management Director, emergency management Deputy director, Building Inspector, Deputy Zoning Officer, Inspections Director, Information Specialist, Fire Marshall, County School Facilities Director, Public Works Director, Environmental Health Director

- City of Archdale strategy development participants: City Manager, Public Works Director, Guil-Rand Fire and Rescue personnel

- City of Asheboro strategy development participants: City Manager, Public Works Director, Planning Director, City Engineer, Water Resources Director, Fire Chief, Chief Inspector, Safety Coordinator

- Town of Liberty strategy development participants: Town Manager, Fire Chief

- City of Randleman strategy development participants: City Manager, Planning Director

- The towns of Franklinville strategy development participants: Town Clerk

- The Town of Ramseur strategy development participants: Town Clerk

- The Town of Staley strategy development participants: Delegate; Town Clerk

- The Town of Seagrove strategy development participants: Mayor Pro Tem; Fire Department

Steering Committee Meeting – November 20, 2003

Attendees: *Randolph County – Tim Mangum, Jay Dale, Neil Allen, Donovan Davis, Hal Johnson, Randle Brim, Rick Davis, Bob Scherer, Duke Grimstead, Paxton Arthurs; Asheboro – John Ogburn, Dumont Bunker, Melvin Allen, Mike Jones, Reynolds, Neely, Mike Mize, Tim Allred, Jim Smith, Rusty Turner, Bobby Kivett; Archdale – Gary Parker, Jeff Wells; Franklinville – Nancy Granger; Liberty – Chad Howell, J. R. Beard; Ramseur – Frieda Waisner, Hampton Spivey; Randleman –Greg Patton; Seagrove – Melody Martinez, Fred Marsh; Staley – Lonna Hart; PTCOG – Paula Sloneker, Ginger Booker*

Reviewed Plan contents which included:

- Plan Purpose
- Statement of the Problem
- Narrative of planning process
- Planning participants
- Draft Resolutions for adoption, and
- Local Hazard Mitigation Plans (Subsections 1 - 10)

Reviewed each jurisdiction's individual plan (strategies) contained in one of the subsections. Discussed planning process, timeline and need for plan to ultimately be adopted by each jurisdiction's council or commission. Discussed and planned the final public meeting requirement. Revised document as necessary.

Second Public Meeting: December 1, 2003

The second public meeting was advertised in the local newspapers, and posted on City, Town, and County bulletin boards and calendars. Twenty-two copies of the basic multi-jurisdictional plan and the ten subsections representing each individual jurisdiction were distributed to the public libraries and town/city halls.

Held second public meeting as required. Meeting took place during the regular Commissioner's Meeting at 4:00 pm. Presented findings in Phase I (hazard profile, vulnerability assessment and local capability assessment) and Phase II goals and strategies of Randolph County and municipalities to the board and public. [See Appendix E for certified minutes from the meeting.]

After answering questions by the Board, Chairman Holmes opened the floor for public comment. Hearing none, the regular meeting resumed.

Outreach Efforts to Build Partnerships with Community and Business:

The Draft Multi Jurisdictional Hazard Mitigation Plan is available to the public for review and comment on the Randolph County Planning and Zoning Department web page at http://www.co.randolph.nc.us/planning_zoning/default.htm/. The following lists the

community leaders in business and industry who received an invitation to the planning process and were informed of the availability of the plan on the website for their review with contact information for questions and comments. See Appendix F for documentation of letters and communications.

Business and Industry Contacts

Dr. Richard T. Heckman, President, Randolph Community College
Rhonda Winters, Director of Extension, Archdale Campus, Randolph Community College
Mr. J.D. Davis, J.D. Davis Insurance, Archdale
Matt Lowe, State Farm Insurance, Archdale
Darrell Heinrick, Time Warner Cable
Larry Darr, Darr Construction Company, LLC
Jeff Gerlock, Blue Ridge Geological Services, Inc.
Trela Hendrix, Supreme Foam, Inc.
Scott Grissom, Costa & Grissom Machinery Company, Inc.
Mr. Steve Swaim, District Manager, Duke Power Company
Mr. Steve Fussell, North State Communications
Mr. H. E. Johnson, Piedmont Natural Gas Co.
Mr. Andy Honeycutt, Community Relations Mgr., Progress Energy
Mr. Dale Lambert, General Manager, Randolph Electric Membership Corp.
Mr. Steve Cox, General Manager, Randolph Telephone
Ms. Kaye Bryan, Board Member, Sprint
Mr. Wayne Jarrell, Vice President, Bank of The Carolinas
Mr. David Cross, Asheboro City Exec. VP, CCB
Mr. Duffy Johnson, Senior Vice President, Carolina Bank
Ms. Susan Lednum, Asst. Vice President, Fidelity Bank
Ms. Robin Garner, First Bank, Seagrove
Mr. Michael C. Miller, President & Chairman, First National Bank & Trust Co.
Mr. Michael King, Market Executive, RBC Centura Bank
Ms. Lisa Huffman, Branch Manager, Randleman Savings Bank
Mr. Jim Foster, CEO, Wachovia Bank of North Carolina
Mr. Corie McRae, Nationwide Insurance & Financial Services
Ms. Melinda Lowe, Agent, Allstate- Mendi Lowe Agency
Mr. Jeff Kivett, Co-Owner, K & K Underground Utilities, Inc.
Mr. Jake Misenheimer, President, A & M Construction Services, Inc.
Mr. Joe Trogdon, Owner, S. E. Trogdon & Sons, Inc.
Mr. Ed McGrath, Owner, Ed McGrath Construction & Development
Ms. Jill Akins, Executive Officer, Asheboro-Randolph Board of Realtors
Mr. Russell H. Williams, North Carolina Zoological Society
Mr. Keith Morgan, General Manager, Hedgecock Builders Supply Co.
Mr. Tom Morris, Jimmy Ward Hardwoods
Mr. Russ Compton, Lowe's Inc.
Mr. Doyle Carlisle, Martin Marietta Aggregates
Mr. Bobby Stutts, Owner, Seagrove Wood Stock
Mr. Mark Hall, Dir. of Public Affairs, Time Warner Cable
Ms. Patsy Dalke, American Red Cross Mid-Carolina Chapter
Mr. Paul Rudd, Habitat for Humanity of Randolph County
Mr. Steven Eblin, VP-Corp. Planning & Dev, Randolph Hospital
Mr. Johnny Henson, Central Carolina Home Inspection Services Inc.
Mr. Greg Russell, President, GARCO, Inc.
Mr. David Renfro, Publisher, The Courier-Tribune

Phase III – Spring- Summer 2004

Third Round of Public Meetings: August 2, 2004

The public meetings were advertised in the local newspapers, and posted on City, Town, and County bulletin boards and calendars, and put on the agenda for the jurisdictions regular board meetings. Twenty-two copies of the basic multi-jurisdictional plan and the ten subsections representing each individual jurisdiction have been available to the public in all libraries and town/city halls.

The county meeting took place during the regular Commissioner's meeting at 4:00 pm on August 2, 2004. Through a PowerPoint presentation, the public and elected officials were informed of the findings in Phase I (hazard profile, vulnerability assessment and local capability assessment) and Phase II goals and strategies of Randolph County and municipalities.

After answering questions by the Board, Commissioner Frye requested that the plan be revised to include a provision that the commissioners be kept apprised of the progress of this plan. The plan has been revised to require that the annual review process include presenting a statement of facts and progress to the County Commissioners each year. There were no comments from the floor.

Other public meetings to review the plan were conducted in the cities of Archdale and Asheboro, and the towns of Liberty and Ramseur. The presentation included a review of all findings, and an explanation of strategies chosen for each municipality. The general public asked questions for clarification, but did not request revisions or changes in the plan.

- Copies of the Randolph County plan were distributed to the neighboring jurisdictions of Montgomery County, Davidson County and Guilford County, as well as the cities of High Point, Jamestown, and Greensboro.

- The Randolph County Multi- jurisdictional Hazard Mitigation Plan was revised per NCDEM comments, suggestions by County Commissioners and City and Town Council members.

- The Randolph County Multi-Jurisdictional Plan was adopted by the county and municipal jurisdictions. Resolutions to adopt are included in this document.

- **The NCEM approved Multi-Jurisdictional Hazard Mitigation Plan, which has been adopted by the County and all municipalities, is posted on the county website indefinitely.**

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Multi-Jurisdictional Hazard Mitigation Plan

1. Plan Components: The following subsections contain the Hazard Mitigation Plans for each jurisdiction in Randolph County. The plans were designed to address the specific hazards or vulnerabilities of each jurisdiction. Each subsection will:

I. Identify the jurisdiction
II. Briefly describe the community's profile
III. Briefly describe the major concerns for the jurisdiction
IV. Identify mitigation goals, objectives and strategies
V. Describe implementation
VI. Describe the monitoring, evaluating and reporting process, and
VII. Include a provision to allow for revisions and updates within individual jurisdictions so long as such revisions and updates do not affect any other jurisdiction

2. Hazard Mitigation Goals:

Goals are general guidelines that explain in a broad sense, what you want to achieve. Goals are usually expressed as broad policy statements. The goals stated in this hazard mitigation plan represent the desired long-term results sought by Randolph County and its municipalities. The objectives address problems and situations identified through analysis of the hazard profile, vulnerability assessment, and local government capability assessment and are specific to each jurisdiction.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure that are at risk of damage due to natural hazards and to undertake cost-effective mitigation measures to minimize losses

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies:

Mitigation tools are designed to reduce risk, eliminate risk, or share risk. Risk reduction refers to activities that reduce the impact of natural hazards and involves either structural or non-structural measures. *Structural measures involve building or creating control structures that modify the hazard*, such as dams, levees, and seawalls. Structural measures were widely used to control flooding throughout the United States. However, there are limits to the usefulness of structural measures. Most significant structural

barriers have already been built and these structures in and of themselves constitute a hazard risk. In addition, there are long-term adverse impacts of structural controls on the environment. The ensuing destruction of ecosystems, far beyond the geographic area where the structure was built, makes this strategy much less desirable.

*Non-structural risk reduction measures modify vulnerability or exposure **to** the hazards*. These measures may include: setting building codes standards; enforcing building codes; conducting ongoing building inspections to ensure that structural integrity is maintained, building strengthening and retrofits to withstand winds or absorb the force of movement, as well as safe construction practices, such as securing the building to the foundation and using appropriate fastener to connect roofs to structures.

Risk reduction measures are generally effective. However, when land use planning for hazards is not incorporated into a hazard mitigation plan, risk reduction measures may also be used as a way to develop hazard prone areas for short-term economic gain instead of steering development to safer areas. Planning is the key to making mitigation a proactive rather than reactive process and to ensuring that land subject to hazards is identified and managed appropriately to reduce future exposure.

Through planning, individual mitigation projects and initiatives can be carried out in a cooperative manner so that all local activities are unified and consistent, and no single action or project detracts from the overall goal of creating a safer community.

Planning also plays an important part in generating community understanding of and support for hazard mitigation. The hazard mitigation planning process serves to publicize hazard information and create a forum for discussion of how best to balance the public interest and private property rights.

Risk sharing involves using financial instruments to spread the cost of the disaster event and moderate financial losses to business, individuals and community through insurance, tax incentives, and relief payments. The National Flood Insurance Program is the strongest example of a risk sharing measure, though there is criticism that such programs promote development in hazard prone (flood prone) areas.

All of these types of strategies were considered for each jurisdiction with a major emphasis on planning strategies. See Appendix H for master list of mitigation strategies under consideration by each jurisdiction with briefly stated rationale for the final choice of strategies accepted or rejected by a jurisdiction.

4. Implementation of Hazard Mitigation Strategies

The Randolph County Multi-Jurisdictional Hazard Mitigation Plan will be implemented through the delegation of assignments specified within this Plan. In each jurisdictional plan an individual jurisdiction's mitigation actions are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, and a time frame for implementation for each proposed mitigation action. Strategies that will be incorporated into existing programs or activities are identified. When applicable, potential funding sources were also listed. Plan implementation will start from the time that it each plan is adopted.

5. Monitoring, Evaluating, and Reporting Progress

Each Plan identifies the persons or position responsible for routine monitoring of the plan.
The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

Using the evaluation form, each jurisdiction must create a progress report summarizing the progress of the Plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

6. Revisions and Updates:

Each jurisdiction will produce a progress report with recommendations for updates and revision and bring it before their Commissioners or Councils. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations be submitted to those jurisdictions' council members for adoption.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the hazard mitigation taskforce will submit the hazard profile, vulnerability assessment and local capability section updates or revisions to FEMA and NCDEM for review. The updated plan will then be forwarded to each County, City and Town Manager (where there is no town manager, the town clerk) for review and subsequent adoption by the City/Town Council.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.

- Copies of the plan will be kept on hand at all public libraries and at appropriate agencies through the County, Cities, and Towns. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.

- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 1

Hazard Mitigation Plan for Unincorporated Randolph County:

Community Profile: Randolph County is located in central North Carolina and covers 793 square miles, of which 250 square miles is located in watersheds and watershed critical areas. Of the 504,851 acres of land in the county, 311,657 acres are forestland. Of these, 300,407 forestland acres are privately owned property. The Uwharrie National Forest covers about 4,140 acres of land in southwestern Randolph County. Current population of Randolph County as determined by the 2000 Census is 130,454, which is a 22.4% increase over the past ten years.

The top twenty-five employers throughout the county are:

Employer	***# employed***	***Industry***	***Location***
Randolph County Schools	2,136	Education	
Klaussner Furniture Industries	1,822	Upholstered Furniture	Asheboro
Energizer Battery	1,104	Batteries	Asheboro
Randolph Hospital	880	Health Care	Asheboro
County of Randolph	752	Government	County,
Wal-Mart	718	Retail	County
Acme-McCrary	680	Hosiery	County
Asheboro City Schools	586	Education	Asheboro
Hughes Furniture Industries	500	Furniture	Randleman
Ramtex	500	Synthetic Fabrics	Ramseur
Technimark	490	Plastics Products	County
Sealy, Inc.	463	Mattresses	Archdale
Arrow International	450	Catheters	County
Goodyear Tire and Rubber	432	Wire Cord	County
Prestige Fabricators	422	Foam Products	County
Wells Hosiery	370	Hosiery	County
Hafele America Company	356	Furniture Hardware	County
Sara Lee	336	Fabric Knitting	County
Oliver Rubber	319	Rubber Products	County
Kayser-Roth	300	Hosiery	County
Ultra Craft Company	290	Kitchen Cabinets	Liberty
NC Zoological Park	234	State Zoo	County
The Timken Company	225	Tapered Roller Bearings	County
Dar/Ran Furniture	225	Furniture	County
High Point Furniture Industries, Inc.	225	Wood Office Furniture	County
First National Bank & Trust Company	217	Financial Institution	County

The type of residential growth occurring in Randolph County is described as rural sprawl and has been primarily medium to large lot single-family residential land subdivisions. Most of this development occurs outside of areas served by public infrastructure

Randolph County has developed a growth management plan and has identified growth management areas within the county. Municipal growth areas are areas designated for high-density development. The Primary Growth Areas are located adjacent to municipal limits and extends along the major transportation corridors which transverse the county. These areas will be higher density areas likely to have access to infrastructure such as water and sewer. This area is zoned for mixed use that will include residential commercial and industrial development.

Secondary Growth Areas are medium density areas without access to public infrastructure and predominantly residential. As a matter of policy, Randolph County planning directs major subdivision developments to areas with adequate infrastructure and therefore discourages major subdivision development in the secondary growth areas.

The Rural Growth Areas are largely woodland, forest, and large undeveloped tracts of land predominantly agricultural and rural residential. These areas are part of the county's open space system.

1. Statement of the Problem:

The Northwest quadrant which is the area left of US 220 and north of US 64 is an area of primary concern for Randolph County. Northwest Randolph has moderate to high flood prone areas. In addition, there is some risk of dam failure and mine subsidence due to the numerous abandoned underground mine workings. Unincorporated northwest Randolph County is predominantly designated as either municipal growth areas, or primary and secondary growth areas and the highest population density in the county.

This area has approximately 478 occupied units in the SFHA zone with an estimated value of the structures at $36,053,758.60 and 1252 persons exposed to flood hazards. The Caraway Creek floodplain and Beard Lake Dam (especially through Clover Drive and Oak View Drive) have numerous single-family dwellings located either directly downstream of the dam or within the floodplain.

There are approximately nine or ten abandoned mines throughout the northwest County area. Of particular concern are abandoned gold mines which are generally underground mines with shafts that increase the likelihood of ground subsidence. Their exact locations are not accurately mapped, nor are there much data on the extent of underground shafts. However, the Sawyer mine, located 7.8 miles northwest of Asheboro has a total of seven shafts with the deepest shaft being 150 feet. The Hoover Hill mine has at least two shafts over 350 feet deep with numerous smaller shafts nearby.

Other high hazard dams located in northwest Randolph County:

- Joe Lambeth Dam (breached)
- King Lake Dam
- Ingold Dam
- Lucas Lake Dam
- Asheboro Country Club Lake Dam
- Holly Ridge Golf Links Dam No. 1

The unincorporated territory in the northeast quadrant of the county has moderate to high flood prone areas. At risk for flooding is an exposed population of 1124 persons with 431 occupied housing units within the special flood hazard area. These units are valued at an estimated $33,462,500. There are approximately seven abandoned mines throughout the northeast County area. Their *exact* locations are not accurately mapped, nor are there much data on the extent of underground shafts. Depth and length of most shafts are unknown. The Redding and Scarlet shafts are from 50 to 60 feet deep.

Four high hazard dams are located in northeast Randolph County:

Areas of Acceptable Risk

For the purposes of this plan, the unincorporated territory in southeast and southwest Randolph County is an area of acceptable risk.

According to USGS maps, the eastern portion of Randolph County has a high incidence of landslide, although there is no formal record or anecdotal memory of occurrences.

Approximately the same area of landslide hazard risk is also within a 50-mile radius of the Shearon Nuclear Facility in Raleigh. The Nuclear Regulatory Commission has designated the 50-mile zone around each nuclear power station as an "Ingestion Exposure Pathway Zone" which means that the main exposure in the event of a nuclear disaster is from ingestion of contaminated water, fish or other aquatic foods, as well as milk and fresh vegetables. While planning for the 50-mile zone is left to the state, cooperation from local governments, particularly at the county level is necessary. If an evacuation of the 10-mile emergency plan area was is in effect, voluntary evacuations within a 50-mile area would likely occur. The towns of Staley, Liberty, Ramseur and Franklinville and most of the western portion of rural Randolph County fall within this 50-mile zone. US 64 west is the main evacuation route.

Southwest Randolph County has approximately 17 abandoned mines, which reportedly have some deep vertical shafts. Most of this area is designated as a rural growth management area and will not likely be developed.

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. Randolph County has developed the following goals which are broad policy statements aimed at guiding and directing future County activity so that persons, property, government, and infrastructure are protected from the impacts of Natural Hazards.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure that are at risk of damage due to natural hazards and to undertake cost-effective mitigation measures to minimize losses

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

To follow are the objectives and strategies related to these goals which Randolph County will use to mitigate natural hazard impacts on the county.

3. Hazard Mitigation Strategies for Unincorporated Randolph County

In the following pages, mitigation actions for unincorporated Randolph County are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: Randolph County government capability includes:

- Planning department in place
- Zoning ordinance
- Subdivision ordinance
- Flood prevention ordinance
- Watershed protection ordinance
- Growth Management Plan
- Unified Development Ordinance
- Land use plan
- National Flood Insurance Program Member
- Strong GIS capability

Randolph County emergency management currently collects hazard event information. To better enable the county to address specific geographically hazardous areas, this information will now be forwarded to the County Planning Department information specialist who will digitize the data. This information will provide a mechanism for monitoring and evaluating mitigation efforts.

Objectives:

1.1: To increase data and information collection capability concerning impacts of natural hazard on Randolph County
1.2: To provide a mechanism for monitoring and evaluating progress and effectiveness of hazard mitigation strategies for the County and its municipal jurisdictions

Strategies	**Project or Policy**	**Hazard Targeted**	**Funding**	**Lead Department**
1 A	Planning and EM will coordinate the collection and storage of damage assessment information such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged, ***in digitized form*** and in one central location for easy retrieval. Information Planning Specialist is responsible collection and maintenance of database	Multi-hazard	***Local***	*Planning/ Information Specialist* *Emergency Management*
1 B	*EOP originally developed in 1994*. Update Emergency Operations Plan.	*Multi-hazard*	***NCEM***	*Emergency Management*
1 C	Develop recommendation for protecting command centers. Identify alternate command posts	*Multi-hazard*	***need not anticipated***	*Emergency Management*

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure that are at risk of damage due to natural hazards and to undertake cost-effective mitigation measures to minimize losses

Background: Randolph County does not have any critical facilities located in a geographically hazardous area. However, alternative power sources are necessary when natural disasters result in large-scale power outages. Emergency management, Emergency Operations Center, 911 center, Fire and Rescue have generators in case of power failure. Command center adequately protected. Alternate command post identified. Water is not supplied by the county in unincorporated Randolph County.

Objective:

2.1 To ensure a continuous power supply for critical facilities and services during and after an ice/snow storm

Strategies	**Project or Policy**	**Type(s) of Hazard Targeted**	**Funding**	**Lead Department(s)**
2 A	Procure generators and fuel for alternative sources of power for • County School system (1) -at least preferably fixed • Waste water treatment plants (4)	Ice/snow storm High wind events	*County*	County School Finance Director County Schools Executive Director, Facilities & Construction, **through regular annual budget process.** Water Resources, Public Works **through annual budget process**
2 B	Obtain and install transfer switches	Ice/snow storm High wind events	*Homeland security grants available*	*Emergency Management*

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the County does not have a formal outreach program for hazard mitigation or hazard awareness. Properties in flood plains have been identified and mapped through GIS. The process by which this hazard mitigation plan has been developed and through; the process of the commissioners review and subsequent adoption of this plan is the main vehicle for increasing the knowledge and awareness of the County decision makers and personnel

Targeted areas: Caraway Creek Floodplain, Uwharrie River and Little Uwharrie River floodplains
Targeted populations: Mobile home/manufactured home parks

Objectives:

3.1 Increase awareness and understanding of local government and general public of the need for hazard mitigation to protect persons and property from the impacts of natural hazards.

3.2 Provide flood protection information to property owners in high risk areas
3.3 Increase public knowledge of importance of flood insurance.

Strategies:	**Project or Policy**	**Hazard**	**Funding**	**Lead Department(s)**
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision-making processes. **Outreach and Education is part of job descriptions for Planning and Emergency Management personnel. Staff will incorporate hazard mitigation education into existing programs. Education and outreach goals are written into the Emergency Management Departmental goals submitted to the state annually.**	*Multi-hazard*	*Local*	*Planning/Emergency Management/Public Works/Water Resources*
3 B	Design a seasonal public information/education program targeted to mobile home/manufactured home residents through central permit process - explaining hazards such as high wind events, flooding and alternative shelters in a storm/high wind event/ flood. **Will distribute information through existing central permit process with standard permitting information.**	*Flood*	*Local*	*Planning/ Emergency Management*
3 C	Disseminate information on the benefits of purchasing **flood insurance** to property owners in flood hazard areas (targeting Caraway Creek Floodplain, Uwharrie River and Little Uwharrie River floodplains) (yearly)	*Flood*	*Local*	*Emergency Management*
3 D	Hold yearly "Flood Hazard Awareness Week" countywide – **new program added to existing emergency management outreach education program**	*Flood*	*Local*	*Planning/ Emergency Management*

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets including addressable structures, critical facilities, critical services and infrastructure due to natural hazards

Background: Through hazard mitigation planning process and vulnerability assessment, Randolph County has identified geographic areas at high risk for flood, sinkholes, and dam failure. Since there are existing structures in identified hazardous locations, the County will pursue a 911 reverse call system for warning specific areas under threat from especially from dam failure and flooding.

Objectives:

4.1 To identify vulnerable populations and provide emergency shelter.

4.2 To protect and warn persons and existing development from flood damage, dam failure and other geographically specific hazard locations.

Strategies:	**Project or Policy**	**Type(s) of Hazard Targeted**	**Funding**	**Lead Department(s)**
4 A	Consider sign ordinances limiting height or size of signs in certain corridors.	*High wind events*	Local	*Planning*
4 B	Identify and map mobile home parks **by GIS and information specialists at the county level.**	*Multi – hazard*	Local	*Planning*
4 C	Review and revise location of emergency shelters throughout county and municipalities.	*Multi hazard*	Local	*Emergency Management*
4 D	Identify and designate at least one emergency shelter in each municipality.	*Multi hazard*	Local	*Emergency Management*
4 E	Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster. **Will be implemented as part of emergency management ongoing program to improve efficiency and effectiveness of department.**	*Multi hazard*	*Homeland security funds*	*Emergency Management*
4 F	Identify potential inundation areas downstream of high hazard dams.	*Dam Failure*	Local	*Planning/Emergency Management*
4 G	Work with Dam Safety Officials to have emergency plans for high hazard dams filed with the local government	*Dam Failure*	Local	*Emergency Management* *State Dam Safety Office in Winston-Salem*
4 H	Look into funding for and developing program to clear debris from culverts and storm drains in priority floodplains.	*Flooding*	Local; plus other funding to be identified	*Water resources* *Public Works*

GOAL 5: To ensure disaster resistant future development

Background: Randolph County has a Growth Management Plan and Unified Development Ordinance. Through the Growth Management Plan, primary, secondary, and rural growth areas are identified. County Unified Development Ordinance encourages street interconnectivity in all new subdivisions to allow multiple access points for emergency vehicles.

Objectives:

5.1 To protect future development from the impacts of natural hazards

5.2 Regulate future development to prevent damages and losses from natural hazard events

Strategies:	**Project or Policy**	**Type(s) of Hazard Targeted**	**Funding**	**Lead Department(s)**
5 A	**Through existing subdivision regulations**, encourage that power, cable and telephone lines be buried.	*High Wind/ Ice/Snow*	Local	*Planning*
5 B	Strengthen floodplain regulation to current standards. (New model regulation.)	*Flood*	Local	*Planning*
5 C	**Adopt as countywide policy as part of the Unified Development Ordinance**: Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	*Multi-hazard*	Local	*Planning*
5 D	Looking into safe growth management strategies for development downstream of dams**. Will incorporate into overall Countywide Growth Management Plan**	*Multi-hazard*	Local	*Planning*
5 E	Create a GIS overlay of abandoned mine locations. When a mine is identified on a plat under review for development, the location of the mine is noted and the mine is investigated to determine the extent of underground workings before the land is developed. **(Completed**)	*Sinkhole/subsidence*	n/a	*Planning*

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each County Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

Randolph County will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the Planning Director will provide a copy of the hazard mitigation plan to each member of the planning team. The Planning Director will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	**1A**	**N**	**X**		
High	**1B**	**A**		**X**	
Moderate	**1C**	**N**		**X**	
Moderate	**2A**	**C**			**X**
Low	**2B**	**N**			**X**
High	**3A**	**C**	**X**	**X**	
High	**3B**	**N**	**X**	**X**	
Moderate	**3C**	**C**	**X**	**X**	
Moderate	**3D**	**N**	**X**	**X**	
Low	**4A**	**A**		**X**	

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
Low	**4B**	**C**	**X**	**X**	
Moderate	**4C**	**C**		**X**	
Moderate	**4D**	**N**		**X**	
High	**4E**	**N**			**X**
Moderate	**4F**	**C**	**X**	**X**	
Low	**4G**	**N**	**X**	**X**	
Low	**4H**	**N**			**X**
Moderate	**5A**	**C**	**X**	**X**	
High	**5B**	**A**		**X**	
High	**5C**	**C**		**X**	
High	**5D**	**N**			**X**
Moderate	**5E**	**N**	**X**	**X**	

5. Monitoring, Evaluating, Reporting Progress

Monitoring: It is the responsibility of the Director of Planning and the Emergency Management Director to continually monitor the progress of the strategies outlined in this plan.

Evaluation: The evaluation form in Appendix D will be used by County staff to begin the annual evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The hazard mitigation core taskforce will include the County Planning Director, Emergency Management Director, and County Information Specialist. This core taskforce (and others at the discretion of the taskforce) will convene annually to review and evaluate the Plan's effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the Plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the hazard mitigation Taskforce will review and update the plan after any *presidential disaster declaration* for the County or any of its municipalities.

The core taskforce is also responsible for updating and revising the hazard profile, vulnerability assessment, and local capability sections for all jurisdictions at the end of every five-year cycle.

Reporting Progress: The core taskforce will review the annual evaluation report and ***annually present all findings to the Randolph County Commissioners*** along with any recommendations for updates or revision to Subsection 1: Unincorporated Randolph County Hazard Mitigation Plan. The county will also provide the annual evaluation report to all municipalities.

6. Revisions and Updates:

As revisions and updates occur, the date, reason and responsible party should be noted. Revisions and updates which affect the plan as a whole or impact any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.
- Copies of the plan will be kept on hand at all public libraries and at appropriate agencies through the County. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.
- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 2

Hazard Mitigation Plan for City of Archdale

Community Profile: Archdale has more then 9,000 residents and is the second largest city in Randolph County. Growth in the 1990's was the highest in the history of the City Archdale with a 30% growth rate between 1990 and 2000, mostly on the eastern and southern sides of the City. Less than 10% of the growth has been due to annexation. The major employer for the city is Sealy, Inc.

Although Archdale has experienced considerable growth over the last decade, future growth may be limited because the majority of Archdale's land area lies within the Randleman Lake watershed. Watershed regulations and NPDES Phase II regulations will likely affect development patterns and limit development density. Archdale is governed by a Mayor and five council members. Administrative officials employed by the city are the City Manager, City Attorney, Finance Director, Fire Chief, Planning Director, Planning Director and Public Works Director.

1. Statement of the Problem:

Archdale is vulnerable to high wind events such as those associated with severe thunderstorms, tropical and extra tropical systems, snow and ice events, river and stream flooding, flashflooding, and drought.

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding and/or river and stream flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Repetitive Loss Structures:

The City of Archdale has no recorded repetitive loss structures.

Flood Hazard

Archdale has over 213 occupied housing units located in a flood plain with approximately 503 persons exposed to flood hazards. Estimate value of all existing structures within Archdale city limits, which are located in the Muddy Creek flood plain exceeds $17,700,000.00. No critical facilities, government buildings or schools are located within the flood plains and it does not appear that emergency access is compromised due to road flooding.

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The multi-jurisdictional planning group has developed the following goals which are broad policy statements aimed at guiding and directing future activity so that persons,

property, government, and infrastructure are protected from the impacts of natural hazards. The goals are:

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program natural hazard mitigation.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Archdale

In the following pages, mitigation actions for Archdale are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: Archdale planning department has access to and uses the Randolph County GIS system for planning purposes. City of Archdale government capability includes:

- Planning department in place
- Zoning ordinance
- Subdivision ordinance
- Flood prevention ordinance
- National Flood Insurance Program Member
- Watershed protection ordinance

Objective:

To increase capacity to mitigate natural disasters through developing Archdale's land use planning tools.

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
1 A	Develop stormwater management program **as part of required NPDES Phase II.**	Flood	Local	Planning Department
1 B	Identify emergency water supply through **existing local water supply planning process.**	Multi-hazard	Local	Manager
1 C	Develop a comprehensive policy regarding drought management and response **as part of existing local water supply planning process.**	Drought	Local	Public Works/Manager

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure that is at risk of damage due to natural hazards.

Background: City of Archdale does not appear to have any critical facilities located in a flood zone.

Objective:
To identify and protect critical services and facilities.

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
2 A	Define and identify all "critical facilities"	Multi hazard	Local	Planning
2 B	Fully assess the vulnerability of each identified critical facility to natural hazards	Multi-hazard	Local	Planning/Building Inspections

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the City does not have a formal outreach program for hazard mitigation or hazard awareness. Properties in flood plains have been identified and mapped through GIS.

Objectives:

- *Increase awareness and understanding of local government and general public of the need for hazard mitigation to protect persons and property from the impacts of natural hazards.*
- *Increase availability of flood protection information to property owners in high risk areas*
- *Increase public knowledge of importance of flood insurance.*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision making processes	Multi-hazard	Local	Planning/Emergency Management/Public Works/Water Resources with assistance from PTCOG
3 B	Design a seasonal public information/education program targeted to mobile home/manufactured home residents through central permit process - explaining hazards such as high wind events, flooding and alternative shelters in a storm/high wind event/ flood. **Pamphlets to be inserted in regular mailings to residents.**	Flood	Local	County Planning Department (covers Archdale)
3 C	Disseminate information on the benefits of purchasing **flood insurance through existing central permitting process.**	Flood	Local	County Planning Department

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets

Background: Through hazard mitigation planning process and vulnerability assessment, City of Archdale has identified geographic areas at high risk for flood, sinkholes, and dam failure. Since there are existing structures in identified hazardous locations, the County will pursue a 911 reverse call system for warning specific areas under threat from especially from dam failure and flooding.

Objectives:

- *To identify vulnerable populations and provide emergency shelter.*
- *To protect and warn persons and existing development from flood damage, dam failure and other geographically specific hazard locations.*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
4A	Identify and map mobile home parks **as part of ongoing planning activities.**	Multi – hazard	Local	Planning
4 B	Identify and designate at least one emergency shelter in Archdale	Multi hazard	Local	Planning/Administration
4 C	Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster	Multi hazard	Homeland security funds	County EM (County 911covers all municipalities)
4 D	Develop program to clear debris from culverts and storm drains in priority areas **as part of NPDES Phase II stormwater control standards.**	Flooding	Local	Public Works

GOAL 5: To ensure disaster resistant future development

Background: City of Archdale updated their land management plan in 1998 and is currently developing their strategic plan.

Objectives:

- To protect future development from the impacts of natural hazards
- Regulate future development to prevent damages and losses from natural hazard events

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
5 A	**Through existing subdivision regulations,** encourage that power, cable and telephone lines be buried	High Wind/ Ice/Snow	Local	Planning
5 B	Strengthen floodplain regulation to current standards. (New model regulation)	Flood	Local	Planning
5 C	**In land use plans and development plans, adopt as city policy:** Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	Multi-hazard	Local	Planning

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each City Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

The City of Archdale will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the City Planner will provide a copy of the hazard mitigation plan to each member of the planning team. The City Planner will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1A	N	X		X
High	1B	N			X
High	1C	N		X	
Moderate	2A	C	X	X	
Moderate	2B	C	X	X	
High	3A	C	X	X	
High	3B	N	X	X	

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	3C	N	X	X	
Low	4A	A		X	
High	4B	C	X	X	
High	4C	C			X
High	4D	N	X		X
Moderate	5A	C	X	X	
High	5B	A		X	
High	5C	C		X	

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the annual evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The Archdale hazard mitigation taskforce will include the City Manager and Planning Director (and others at the discretion of the taskforce.) The taskforce will convene annually to review the County evaluation form, evaluate the Plan's effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the Plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation,
- Changes in County priorities,
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the Archdale hazard mitigation taskforce will review and update the plan after any *presidential disaster declaration* for the City.

6. Revisions and Updates:

The City Manager will review the evaluation report and present the findings with recommendations for updates and revision to the City Council for amendment to Subsection 2: City of Archdale Hazard Mitigation Plan. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' commissioners or council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.

- Copies of the plan will be kept on hand at the Archdale public library and at appropriate agencies throughout the City. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.

- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 3

Hazard Mitigation Plan for City of Asheboro

Community Profile: The City of Asheboro is located in the center of Randolph County. With a population of 21,672 it is the largest city in the county. At an elevation of 800 feet, Asheboro covers about 15.3 square miles of land area. Media house value is below state average. Population of Asheboro has almost doubled over the past 25 years. The densest areas of development are within the middle section of the city (block group 30401) and to the east. Asheboro's population is predominantly white with a minority population of less than 15%. Approximately 57% of the population owns their homes. City of Asheboro State Development zones include census block groups 301.01, 303.02, and 304.01. Percentage of the population below poverty level in these areas is approximately 20.47%.

Asheboro city government is equipped with a planning and zoning department, police and fire service, and public works department. Public housing within Randolph County is located within the Asheboro city limits. Asheboro water system serves both Asheboro and the Town of Seagrove.

Major employers in the area are Klaussner Furniture employing 3200 persons, Energizer Battery employing 1,120 persons, Randolph Hospital employing 770 persons, Randolph County employing 574 persons and Asheboro city schools with 553 persons.

1. Statement of the Problem:

Asheboro is most vulnerable to flooding, high wind events such as those associated with severe thunderstorms, tropical and extra tropical systems as well as snow and ice events.

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding and/or river and stream flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Flood Hazard

Asheboro has a moderate amount of occupied units in flood plains areas. .
Approximately 852 persons in 333 occupied housing units are exposed to flood hazard throughout the city of Asheboro. The structures are valued at around $25,600,000.

The geographic area census block group 304001 is of primary concern with 7.7% of occupied housing units within the SFHA, numerous EHS facilities (two are located within flood plain and watershed area) high population density, vulnerable populations, as well as one abandoned gold mine in the area. This is developed municipal area with an estimated 100 occupied

housing units, including mobile homes, in the SFHA exposing over 177 persons to a flood hazard. The approximate value of the structures in the flood plain is $6,189,180.00.

Another area of primary concern is the Pennwood Branch floodplain which has public housing located within the floodplain exposing a highly vulnerable population to flood hazards.

Sixteen of the 23 extremely hazardous substance facilities as identified by the NC Division of Emergency Management are located within Asheboro, most are located in north Asheboro

There are two abandoned mines in Asheboro area. The exact location of these mines is unknown. The Scarlett mine is located approximately 2.4 miles north of Asheboro, in the town of Balfour. The mineshafts depths are 60 foot to 120 foot long and extend over 500 feet.

Repetitive Loss Structures:

The City of Asheboro has no recorded repetitive loss structures.

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The multi-jurisdictional planning group has developed the following goals which are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of natural hazards.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Asheboro

In the following pages, mitigation actions for Asheboro are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: City of Asheboro government capability includes:

-Planning department -Flood prevention ordinance -National Flood Insurance Program Member
-Zoning ordinance -Drought management plan -Watershed protection ordinance
-Subdivision ordinance -Land use plan

Objective: *To build hazard mitigation capability through developing land use planning tools.*

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
1 A	Build in house GIS capability	Multi-hazard	Local	Planning
1 B	Develop municipal Emergency Operations Plan	Multi-hazard	Local	City Manager
1 C	To require retention/detention ponds or other storm water measure for any planned building groups (residential or commercial)**; will build into existing zoning ordinance**	Flooding	Local	Planning

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure.

Background: City of Asheboro does not have any critical facilities located in a geographically hazardous area. However, alternative power sources are necessary when natural disasters result in large-scale power outages.

Objective: *To ensure a continuous power supply for critical facilities and services*

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
2 A	Procure generators and fuel for alternative sources of power for ➢ All city schools ➢ Water plant ➢ Water pump **Will incorporate into annual budget process over next three years.**	Multi hazard	Local	City School Supt/ Public Works/Water resources/Finance

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the City does not have a formal outreach program for hazard mitigation or hazard awareness. Targeted areas: Pennwood Branch; Public Housing Authority; North Asheboro

Objectives:

- *Increase awareness and understanding of local government and general public of the need for hazard mitigation to protect persons and property from the impacts of natural hazards.*
- *Provide flood protection information to property owners in high risk areas*

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.(s)
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision making processes**, through ongoing hazard mitigation planning five year cycle**	*Multi-hazard*	*Local*	*City Manager/Planning with assistance form PTCOG*
3 C	Disseminate information on the benefits of purchasing **flood insurance**	*Flood*	*Local*	*Planning*

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets

Background: Through hazard mitigation planning process and vulnerability assessment, City of Asheboro has identified geographic areas at high risk for flood, sinkholes, and dam failure. Since there are existing structures in identified hazardous locations, the County will pursue a 911 reverse call system for warning specific areas under threat from especially from dam failure and flooding.

Objectives:

- *To identify vulnerable populations and provide emergency shelter.*
- *To protect and warn persons and existing development from flood damage, dam failure and other geographically specific hazard locations.*

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Department(s)**
4 A	Identify and map mobile home parks	Multi – hazard	Local	Planning
4 B	Identify and designate at least one emergency shelter in each municipality	Multi hazard	Local	City Manager and County EM
4 C	*Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster*	*Multi hazard*	*Homeland security funds*	*County Emergency Management*
4 D	Look into funding for and developing program to clear debris from culverts and storm drains in priority floodplains.	Flooding	Local; plus other funding to be identified	Water resources Public Works
4 E	**Existing zoning ordinance to be modified** to require ice damage resistant trees along buffers and screens	Ice event	Local	Planning
4 F	Consult with Asheboro Housing Authority to create evacuation plans for those units in flood plains	Flood	Local	City Manager/Planning
4 G	Consult with Asheboro Housing Authority to consider buyout and relocation for public housing in flood plains	Flood	Federal funding	City Manager/Planning

GOAL 5: To ensure disaster resistant future development

Objectives:

- To protect future development from the impacts of natural hazards
- Regulate future development to prevent damages and losses from natural hazard events

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept(s)**
5 A	**Through existing subdivision regulations**, encourage that power, cable and telephone lines be buried	*Multi hazard*	Local	*Planning*
5 B	Strengthen floodplain regulation to current standards. (New model regulation)	*Flood*	Local	*Planning*
5 C	**In land use plans and development plans, adopt as city policy:** Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	*Multi-hazard*	Local	*Planning*
5 D	Develop a program to clear debris from culverts and storm drains in priority floodplains.	*Flood*	Local	*Public works*

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each City Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned

The City of Asheboro will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the City Planner will provide a copy of the hazard mitigation plan to each member of the planning team. The City Planner will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1A	N	X		
High	1B	A		X	
Moderate	1C	N		X	
Moderate	2A	C			X
Low	2B	N			X
High	3A	C	X	X	
High	3B	N	X	X	
Moderate	3C	C	X	X	
Moderate	3D	N	X	X	

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
Low	4A	A		X	
Low	4B	C	X	X	
Moderate	4C	C		X	
Moderate	4D	N		X	
High	4E	N			X
Moderate	4F	C	X	X	
Low	4G	N	X	X	
Low	4H	N			X
Moderate	5A	C	X	X	
High	5B	A		X	
High	5C	C		X	
High	5D	N			X
Moderate	5E	N	X	X	

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The City of Asheboro Hazard Mitigation Taskforce will include the City Manager, Planning Director, Fire Chief, City Engineer and Public Works Director. This core taskforce (and others at the discretion of the taskforce) will convene annually to review the County evaluation form, evaluate the Plan's effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the Plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the Asheboro City Hazard Mitigation Taskforce will review and update the plan after any *presidential disaster declaration* for the City of Asheboro.

6. Revisions and Updates:

After completion of the evaluation report the taskforce will present the findings with recommendations for updates and revision to the City Council for amendment to Subsection I: City of Asheboro Hazard Mitigation Plan. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.
- Copies of the plan will be kept on hand at the public library and at the City Hall. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.
- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 4

Hazard Mitigation Plan for the Town of Franklinville

Community Profile: The Town of Franklinville is located west of Asheboro, along route US 64 and has a population of approximately 1,258 persons. Franklinville has very limited capability to mitigate against natural hazards. Law enforcement is provided by Randolph County Sheriff's department. Franklinville government consists of a Mayor, town council, town clerk, planning board administrator, and water /sewer /maintenance supervisor. The major employer is Randolph Industries. Franklinville purchases its drinking water from the Town of Ramseur.

1. Statement of the Problem:

Franklinville is vulnerable to flooding, dam failure, high wind events such as those associated with severe thunderstorms, tropical and extra tropical systems, and snow and ice events.

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding and/or river and stream flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Flood and Dam Failure

Franklinville is highly vulnerable to floods and dam failure which would likely severely impact the town. While there is no critical facility located in a flood plain, government buildings (town hall) and the fire station in the city of Franklinville is located between flood zones that could result in blocked road access east and west main street and compromise response times in the event of an emergency. Rose Street is the only alternative route. In addition, though not technically in a flood plain, the town hall does experience nuisance flooding during heavy rains.

Mobile home parks and individual mobile homes are located in the SFHA (Ogles Creek Road and on Faith Rock Road south of E main.)

The Randolph Mill Earthen Dam is in need of maintenance; the last inspection report states that there is seepage, several areas of sliding, and the dam face is very wet.

The Ramseur Water Supply Dam is located within the SFHA which increases the risk of dam failure. Reportedly, there is a transverse crack in the concrete on the upstream and downstream face of the dam. A crack monitor has been placed to check movement. Dam Safety officials have recommended repairs be made on a depression near the left top abutment (no record of repair completed). The Ramseur filtration plant is 1000 feet downstream; the new Ramseur filtration plant is 2700 feet downstream. Also at risk are the Town of Franklinville, US 64, numerous dwellings, buildings, roads and utilities downstream.

Repetitive Loss Structures:

The Town of Franklinville has no recorded repetitive loss structures.

Local Government Capability:

Franklinville does not have a planning department or employ a planner. The Town of Franklinville has three major ordinances that regulate the development of land: the zoning ordinance, subdivision regulations, and watershed ordinance. Franklinville is part of the Randolph County Watershed Interlocal agreements which limits the development density of land in an effort to reduce the degradation of drinking water supplies

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The multi-jurisdictional planning group has developed the following goals which are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of natural hazards.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Franklinville

In the following pages, mitigation actions for Franklinville are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: Franklinville does not have a planning department or employ a planner. Three major ordinances regulate the development of land: the zoning ordinance, subdivision regulations, and watershed ordinance. The watershed regulations are
:

- Zoning ordinance
- Subdivision ordinance
- Watershed protection ordinance

Objectives:

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
1A	Update flood prevention ordinance	*Flood*	***Local***	***Town Clerk***
1B	Develop procedure for recording damage assessment information such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged, narrative description of damage (not just $value) for local use in hazard mitigation and land use planning.	*Multi-hazard*	***Local***	***County EM and County Planning (covers all municipalities)***
1C	**Working with Ramseur in regular water supply planning process**, develop emergency water supply capability	*Multi-hazard*	***Local***	***Town Clerk/Town Council/***

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure

Background: The Town of Franklinville does not have critical facilities in floodplains however; it is possible that emergency access would be severely compromised in the event of a flood. The town hall experiences occasional nuisance flooding.

Objective:

2.1 To ensure a continuous power supply for critical facilities and services during and after an ice/snow storm
2.2 To protect critical facilities, services and documents from flood damage

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
2 A	Evaluate generators and fuel for alternative sources of power for	Ice/snow storm High wind events		
2 B	Strengthen mobile home/manufactured home anchoring requirements	High wind events	*Local*	*Town Manager*
2C	Purchase flood insurance for Franklinville Town Hall	Flood	*Local*	*Town Clerk*
2D	Store important documents and materials on upper floors of Town Hall	Flood	*Local*	*Town Clerk*

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the town does not have a formal outreach program for hazard mitigation or hazard awareness. Liberty has no flood plains or other geographically hazardous area within town limits or ETJ.

Objectives:

Increase awareness and understanding of local government and general public of the need for hazard mitigation to protect persons and property from the impacts of natural hazards.

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision making processes	*Multi-hazard*	*Local*	*Town Clerk with assistance from PTCOG*

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets including addressable structures, critical facilities, critical services and infrastructure due to natural hazards

Background: Through hazard mitigation planning process and vulnerability assessment, Franklinville has identified geographic areas at high risk for flood and dam failure. With existing structures in identified hazardous locations, Franklinville will benefit from the county 911 reverse call system for warning these specific areas under threat from especially from dam failure and flooding.

Objectives:
To identify vulnerable populations and provide emergency shelter.
To protect and warn persons and existing development from flood damage, dam failure and other geographically specific hazard locations.

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
4 A	Identify and designate at least one emergency shelter in each municipality	*Multi hazard*	Local	*Town Clerk with assistance from PTCOG /County EM*
4 B	Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster	*Multi hazard*	*Homeland security funds*	*Countywide /Emergency Management*
4 C	Develop program to clear debris from culverts and storm drains in priority floodplains.	*Flooding*	Local	*Public Works*

GOAL 5: To ensure disaster resistant future development

Background: The Town of Franklinville is building capacity for land use planning.

Objectives:

5.1 To protect future development from the impacts of natural hazards

5.2 Regulate future development to prevent damages and losses from natural hazard events

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
5 A	**Through existing subdivision regulations**, encourage that power, cable and telephone lines be buried	*High Wind/ Ice/Snow*	Local	*Planning*
5 B	**Included in land use and development plans** as town policy: Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	*Multi-hazard*	Local	*Planning*
5 C	**Included In land use and development plans:** Where feasible will encourage street interconnectivity in all new subdivisions to allow multiple access points.	*Multi-hazard*	Local	*Planning*

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each City Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

Franklinville will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the Town Clerk will provide a copy of the hazard mitigation plan to each member of the planning team. The Town Clerk will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1A	A		X	
High	1B	A	X		X
High	1C	C			X
Moderate	2A	C	X	X	
Moderate	2B	A		X	
High	2C	N		X	
High	2D	N	X	X	
High	3A	N	X	X	
Moderate	4A	C			X
High	4B	A	X		X
High	4C	N	X	X	
Moderate	5A	C	X		X
High	5B	N	X		X
High	5C	N	X		X

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The Town of Franklinville Hazard Mitigation Taskforce will include the Town Clerk, local Fire Chief and Water/Sewer Maintenance Supervisor. This core taskforce (and others at the discretion of the taskforce) will convene annually to review the County evaluation form, evaluate Subsection 4: Town of Franklinville of the plan for effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the Town of Franklinville Hazard Mitigation Taskforce will review and update the plan after any *presidential disaster declaration* for the Town of Franklinville.

6. Revisions and Updates:

After completion of the evaluation report the taskforce will present the findings with recommendations for updates and revision to the City Council for amendment to Subsection 4: Town of Franklinville Hazard Mitigation Plan. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' commissioners or council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers

(where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.

- Copies of the plan will be kept on hand at the public library and at the Town Hall. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.

- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 5

Hazard Mitigation Plan for the Town of Liberty

Community Profile: Liberty is located on the northeast border of the county and has a population of approximately 2,661 persons. The Town of Liberty is served by eight wells and reportedly, demand will reach 65% by 2020. Liberty has no known geographically hazardous areas within its jurisdiction. Liberty employs a City Manager, Fire Chief, Police Chief, Public Works Director and Town Attorney. It does not have a planning department or GIS capability. The major employer for the town is Ultracraft. The Town of Liberty is within the 50-mile ingestion zone of the Shearon Harris Nuclear Facility. The facility is not mandated to have an evacuation plan for an area beyond 10 miles of the plant.

1. Statement of the Problem:

Liberty is vulnerable to high wind events such as those associated with severe thunderstorms, tropical and extra tropical systems, snow and ice events, river and stream flooding, flash flooding, and drought.

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding and/or river and stream flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Repetitive Loss Structures:

The Town of Liberty has no recorded repetitive loss structures.

Local Government Capability:

Liberty does not have a planning department or employ a planner. The town of Liberty has three major ordinances that regulate the development of land: the zoning ordinance, subdivision regulations, and watershed ordinance. The watershed regulations are included within the zoning ordinance and limit the development density of land in an effort to reduce the degradation of drinking water supplies

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The multi-jurisdictional planning group has developed the following goals which are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of Natural Hazards.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure that is at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Liberty

In the following pages, mitigation actions for Liberty are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: Liberty does not have a planning department or employ a planner. The town of Liberty has three major ordinances that regulate the development of land: the zoning ordinance, subdivision regulations, and watershed ordinance. The watershed regulations are included within the zoning ordinance and limit the development density of land in an effort to reduce the degradation of drinking water supplies.
:

- Zoning ordinance
- Subdivision ordinance
- Watershed protection ordinance

Objective*: To increase local capacity to mitigate the impacts of natural disasters.*

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
1A	Employ a planner	*Multi hazard*	*Local*	*Town Manager*
1B	Create planning department	*Multi hazard*	*Local*	*Town Manager*
1C	Adopt flood prevention ordinance	*Flood*	*Local*	*Town Manager*
1D	Update existing Emergency Operations Plan	*Multi hazard*	*Local*	*Town Manager*
1E	**Review and amend existing capital improvement plan** to ensure capital improvements support mitigating activities and are not counter to hazard mitigation	*Multi hazard*	*Local*	*Town Manager*
1F	Become National Flood Insurance Program Member	*Flood*	*Local*	*Town Manager*
1G	Develop procedure for recording damage assessment information such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged, narrative description of damage (not just $ value) for local use in hazard mitigation and land use planning.	*Multi hazard*	*Local*	*County EM/County Planning; covers all jurisdictions*
1H	Develop emergency water supply capability as **part of local water supply planning process.**	*Multi hazard*	*Local*	
1I	Develop and adopt a drought management/water shortage (conservation) ordinance **as part of local water supply planning process.**	*Drought*	*Local*	*Town Manager*

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure

Background: Town of Liberty does not have any critical facilities located in a geographically hazardous area. However, alternative power sources are necessary when natural disasters result in large-scale power outages.

Objective: *To ensure a continuous power supply for critical facilities and services during and after an ice/snow storm*

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
2 A	Evaluate generators and fuel for alternative sources of power for critical facilities	Ice/snow storm High wind events	*Local*	*Town Manager/Finance officer*
2 B	Strengthen mobile home/manufactured home anchoring requirements	High wind events	*Local*	*Town Manager*

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the town does not have a formal outreach program for hazard mitigation or hazard awareness. Liberty has no flood plains or other geographically hazardous area within town limits or ETJ.

Objective: *Increase awareness and understanding of local government and general public of the need for hazard mitigation to protect persons and property from the impacts of natural hazards.*

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision making processes	*Multi-hazard*	*Local*	*Town Manager with assistance from PTCOG*
3 B	Design a seasonal public information/education program targeted to mobile home/manufactured home residents through central permit process - explaining hazards such as high wind events, flooding and alternative shelters in a storm/high wind event/ flood **through central permit process already in place**	*Multi-hazard*	*Local*	*County Planning/ Emergency Management*

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets including addressable structures, critical facilities, critical services and infrastructure due to natural hazards

Background: Liberty has no known hazard risks associated with its geography. The County will pursue a 911 reverse call system for warning specific areas under threat from natural hazards.

Objectives:

- *To identify vulnerable populations and provide emergency shelter.*
- *To protect and warn persons and existing development from flood damage, dam failure and other geographically specific hazard locations.*

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
4 A	*Identify and map mobile home parks*	*Multi – hazard*	*Local*	*Town Manager with County assistance*
4 B	*Identify and designate at least one emergency shelter in each municipality*	*Multi hazard*	*Local*	*Town Manager /County Emergency Management*
4 C	*Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster*	*Multi hazard*	*Homeland security funds*	*Countywide /Emergency Management*
4 D	Develop program to clear debris from culverts and storm drains in priority floodplains.	Flooding	Local	Public Works
4 E	Adopt tree planting ordinances or programs and landscaping practices that encourage planting trees which are less susceptible to damage from ice storms	Ice events	Urban & Community Forestry Grant Program	Town Manager
4F	Consider Urban Forestry Services development	Ice and wind events	Urban & Community Forestry Grant Program	Town Manager

GOAL 5: To ensure disaster resistant future development

Background: The Town of Liberty does not have a land use plan, however it plans to build local planning capability.

Objectives:

- To protect future development from the impacts of natural hazards
- Regulate future development to prevent damages and losses from natural hazard events

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
5 A	**Through amendments to existing subdivision regulations,** encourage that power, cable and telephone lines be buried	High Wind/ Ice/Snow	Local	*Town Manager/planner*
5 B	**Include in existing land development plans, adopt as town policy:** Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	Multi-hazard	Local	*Town Manager/Planner*
5 C	**Include in existing land development plans,** where feasible will encourage street interconnectivity in all new subdivisions to allow multiple access points.	Multi-hazard	Local	*Town Manager/Planner*
5 D	**Include in existing land development plans, w**herever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	Multi-hazard	Local	*Town Manager/ Planner*

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each City Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

The Town of Liberty will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the Town Manager will provide a copy of the hazard mitigation plan to each member of the planning team. The Town Manager will ensure that all goals and strategies of new and updated local planning documents are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1A	N		X	
High	1B	N			X
High	1C	N		X	
Moderate	1D	A		X	
Low	1E	N		X	
High	1F	N	X	X	
High	1G	N			X
Moderate	1H	C			X
High	1I	A	X	X	

High	2A	C	X	X	
Low	2B	A		X	
High	3A	N	X	X	
Moderate	3B	N	X		X
Moderate	4A	C	X	X	
High	4B	C		X	
High	4C	N			X
High	4D	N	X	X	
Low	4E	N			X
Low	4F	N			X
Moderate	5A	N	X		X
High	5B	A	X		X
Low	5C	N	X		X
High	5D	N	X		X

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The Town of Liberty Hazard Mitigation Taskforce will include the Town Manager, Fire and Public Works Director. This core taskforce (and others at the discretion of the taskforce) will convene annually to review the County evaluation form, evaluate the Plan's effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the Plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the Town of Liberty Hazard Mitigation Taskforce will review and update the plan after any *presidential disaster declaration* for the Town of Liberty

6. Revisions and Updates:

After completion of the evaluation report the taskforce will present the findings with recommendations for updates and revision to the City Council for amendment to Subsection 5: Town of Liberty Hazard Mitigation Plan. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability

assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.

- Copies of the plan will be kept on hand at the public library and at the Town Hall. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.

- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 6

Hazard Mitigation Plan for the Town of Ramseur

The Town of Ramseur is located east of Asheboro, along route US 64 and has a population of approximately 1,588 persons. Ramseur government consists of a Town Mayor, four commissioners, the town clerk, town attorney, zoning enforcement officer, and public works director. Law enforcement and public safety services are carried out through the Ramseur police department and fire service.

1. Statement of the Problem:

Ramseur is vulnerable to flooding, dam failure, high wind events such as those associated with severe thunderstorms, tropical and extra tropical systems, and snow and ice events.

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding and/or river and stream flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Flood and Dam Failure

Over forty-seven occupied housing units are in a flood plain with at least 119 persons exposed to flood hazards. The structures are valued at an estimated $3,313,410. Some mobile home parks are located in or very close to flood zones. No government buildings or critical facilities are exposed.

Ramseur is vulnerable to floods and Ramseur Water Supply Dam failure would severely impact the town since this is the main water supply. Ramseur water is supplied by Sandy Creek Reservoir, and Ramseur Water Supply Dam. Ramseur Water Supply Dam is located within the SFHA which increases the risk of dam failure. Reportedly, there is a transverse crack in the concrete on the upstream and downstream face of the dam. A crack monitor has been placed to check movement. Dam Safety officials have recommended repairs be made on a depression near the left top abutment (no record of repair completed). Ramseur filtration plant is 1000 feet downstream; the new Ramseur filtration plant is 2700 feet downstream. Also at risk are parts of Franklinville, US 64, numerous dwellings, buildings, roads and utilities downstream.

Repetitive Loss Structures:

The Town of Ramseur has no recorded repetitive loss structures.

Local Government Capability:

Ramseur does not have a planning department or employ a planner. The Town of Ramseur has three major ordinances that regulate the development of land: the zoning ordinance, subdivision

regulations, and watershed ordinance. Ramseur is part of the Randolph County Watershed Interlocal agreements which limits the development density of land in an effort to reduce the degradation of drinking water supplies

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The multi-jurisdictional planning group has developed the following goals which are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of natural hazards.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Ramseur

In the following pages, mitigation actions for Ramseur are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each City Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: Ramseur does not have a planning department or employ a planner. Three major ordinances regulate the development of land: the zoning ordinance, subdivision regulations, and watershed ordinance. Ramseur is under the Randolph County Watershed Interlocal Agreement.

Objectives: *Build local capacity for land use planning*

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
1A	Update flood prevention ordinance	Flood	Local	Town Clerk
1B	*Develop procedure for recording damage assessment information such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged, narrative description of damage (not just $value) for local use in hazard mitigation and land use planning.*	*Multi-hazard*	*Local*	*County EM and County Planning (covers all municipalities)*
1C	Develop emergency water supply capability	Multi-hazard	Local	Town Clerk/Town Council/

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure

Background: The Town of Ramseur does not have critical facilities in floodplains

Objective: *To ensure a continuous power supply for critical facilities and services during and after an ice/snow storm*

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
2 A	Evaluate generators and fuel for alternative sources of power for	Ice/snow storm High wind events	*Local*	*Town Clerk*

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the town does not have a formal outreach program for hazard mitigation or hazard awareness.

Objective: *Increase awareness and understanding of local government and general public of the need for hazard mitigation to protect persons and property from the impacts of natural hazards.*

Strategies:	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision making processes	*Multi-hazard*	*Local*	*Town Clerk with assistance from PTCOG*

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets including addressable structures, critical facilities, critical services and infrastructure due to natural hazards

Background: Through hazard mitigation planning process and vulnerability assessment, Ramseur has identified geographic areas at high risk for flood and dam failure. With existing structures in identified hazardous locations, Ramseur will benefit from the county 911 reverse call system for warning these specific areas under threat from especially from dam failure and flooding.

Objectives:
To identify vulnerable populations and provide emergency shelter.
To protect and warn persons and existing development from flood damage, dam failure and other geographically specific hazard locations.

Strategies:	**Project or Policy**	***Hazard***	***Funding***	***Lead Dept.***
4 A	Identify and designate at least one emergency shelter in each municipality	*Multi hazard*	*Local*	*Town Clerk /County Emergency Management*
4 B	Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster	*Multi hazard*	*Homeland security funds*	*Countywide /Emergency Management*
4 C	Develop program to clear debris from culverts and storm drains in priority floodplains.	*Flooding*	*Local*	*Public Works*
4 D	Strengthen mobile home/manufactured home anchoring requirements	*High wind events*	*Local*	*Town Clerk*

GOAL 5: To ensure disaster resistant future development

Background: The Town of Ramseur is building capacity for land use planning.

Objectives:
To protect future development from the impacts of natural hazards
Regulate future development to prevent damages and losses from natural hazard events

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
5 A	**Through existing subdivision regulations,** encourage that power, cable and telephone lines be buried	*High Wind/ Ice/Snow*	*Local*	*Planning*
5 B	**Adopt as town policy and incorporate into land use plans:** Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	*Multi-hazard*	*Local*	*Planning*
5 C	**In land use planning documents,** where feasible will encourage street interconnectivity in all new subdivisions to allow multiple access points.	*Multi-hazard*	*Local*	*Planning*

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each City Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

Ramseur will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the Town Clerk will provide a copy of the hazard mitigation plan to each member of the planning team. The Town Clerk will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1A	A		X	
High	1B	N	X	X	
High	1C	C	X		X
Moderate	2a	C	X	X	
High	3a	N	X	X	
Moderate	4A	C		X	
High	4B	N			X
High	4c	N	X	X	
Moderate	4d	A	X	X	
Low	5a	N	X		X
Low	5b	N	X		X
Low	5c	N	X		X
Low	5d	N	X		X

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The Town Clerk (and others at the discretion of the Town Council) will convene annually to review the County evaluation form, evaluate Subsection 6: Town of Ramseur of the plan for effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the Town Clerk (and others at the discretion of the Town Council) will review and update the plan after any *presidential disaster declaration* for the Town of Ramseur.

6. Revisions and Updates:

After completion of the evaluation report the taskforce will present the findings with recommendations for updates and revision to the City Council for amendment to Subsection 6: Town of Ramseur Hazard Mitigation Plan. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' commissioners or council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. **Continued Public Involvement**

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.

- Copies of the plan will be kept on hand at the public library and at the Town Hall. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.

- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 7

Hazard Mitigation Plan for City of Randleman

Community Profile: The city of Randleman has a population of 3,727 and is located directly north of the City of Asheboro in the center of the County. The city of Randleman is governed by a Mayor and City Alderman. It employs a City Manager, City Attorney, Finance Director, and Planning and Zoning Director. Law enforcement and fire services are provided by the city. Hughes Furniture Industries is the major employer within the city limits. Water for the city of Randleman is drawn from the Polecat Reservoir. Randleman is part of the Randleman Dam Project and the new Randleman Dam is located at the north end of the city.

1. Statement of the Problem:

As with the entire county, Randleman is vulnerable to high wind events such as those associated with severe thunderstorms, tropical and extra tropical systems, snow and ice events, river and stream flooding, flash flooding, and drought.

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding and/or river and stream flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Flood and Dam Failure

Randleman is vulnerable to flood hazards. While there is no critical facility located within the SFHA, there are approximately 30 occupied housing units valued at over $2,000,000 in the SFHA. An estimated 73 persons are exposed to flood hazards. The location and number of persons in floodplains will possibly change over the next five years as the Randleman Lake Project nears completion. Though Randleman Lake is not filled, dam construction is completed. There are reported cracks in the dam in unexpected areas. Emergency Plans have not been developed and are not required until the dam is filled in 2005. Though the proposed lake area is known and mapped, floodplains surrounding the lake area have not been determined. The buffer area around the lake is to be 200 feet. The hazard mitigation plan will need to be revised and updated as more becomes known about the condition of the dam and as the project moves forward.

One extremely hazardous substance facility is located within the Uwharrie/Lake Reese Watershed balance area, and another extremely hazardous substance facility within the Deep River/ Randleman Lake watershed balance area. In addition, the location of the middle school and high school will be in or near the Randleman lake flood zone which may result in compromised road access.

In addition, water is supplied to Randleman by Polecat Creek Reservoir and Randleman City Lake Dam located east of the city. This high hazard dam is located within the SFHA which

increases the likelihood or possibility of dam failure. Dam safety officials report seepage on abutments and wetness at the base of the dam with cracks on both sides and holes on right side and the floodgates are inoperable. Dam failure would result in loss of water supply, would fail Worthville dam, and cause considerable property damage.

Repetitive Loss Structures:

The City of Randleman has no recorded repetitive loss structures.

Local Government Capability:

Randleman has a planning and zoning department, has a flood plain ordinance and is a member of the National Flood Insurance Program. The planning department is in the process of developing an in house GIS capability.

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The multi-jurisdictional planning group has developed the following goals which are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of Natural Hazards.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure that are at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Randleman

In the following pages, mitigation actions for Randleman are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: City of Randleman recently updated their emergency operations plan (2003). Emergency water supply is through connection with Asheboro water system and will be maintained after water supply change from Polecat Creek to Randleman Lake. Local government capability includes:

- Planning department in place
- Zoning ordinance
- Subdivision ordinance
- GIS in house capability
- Emergency operations plan (2003)
- Flood prevention ordinance
- National Flood Insurance Program Member
- Watershed protection ordinance
- Drought policy in place (voluntary and mandatory restrictions, when necessary)

Objective: *To increase local government capability*

Strategy #	**Policy or Project**	**Hazard**	**Funding**	**Lead Dept.**
1A	Update flood prevention ordinance to latest model standard	Flood	Local	Planning
1B	Look into stormwater management planning	Flood	Local	Planning/public works
1C	**Review capital improvement plan** to ensure capital improvements support or consider mitigating activities and are not counter to hazard mitigation.	Multi-hazard	Local	City Manager
1D	Continue to develop GIS capability	Multi-hazard	Local	Planning
1E	*County recording damage assessment information for Randleman, such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged, for local use in hazard mitigation and land use planning.*	*Multi-hazard*	*County*	*County Emergency Management/ County Planning*
1F	Develop and adopt a drought management/water shortage (conservation) ordinance **as part of the regular Local Water Supply Planning process.**	Drought	Local	City Manager, Water Resources

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure that are at risk of damage due to natural hazards and to undertake cost-effective mitigation measures to minimize losses

Background: City of Randleman does not have any critical facilities located in a geographically hazardous area. However, alternative power sources are necessary when natural disasters result in large-scale power outages. Emergency management, Emergency Operations Center, 911 center, Fire and Rescue have generators in case of power failure. Command center adequately protected. Alternate command post identified.

Objective: *To ensure a continuous power supply for critical facilities and services during and after an ice/snow storm*

Strategy #	**Policy or Project**	**Hazard**	**Funding**	**Lead Dept.**
2A	Evaluate current capacity of critical services to deal with power outages	Multi-hazard	Local	City Manager
2 B	Procure generators and fuel for alternative sources of power for • Lift stations and boost stations (12) • Emergency shelter	Multi-hazard	Incremental – in each budget year over the next 5 years.	City Manager, Finance Officer
2 C	Track floodplain changes impacting the city during infill of Randleman Lake.	Flooding	Local	Planning

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the City does not have a formal outreach program for hazard mitigation or hazard awareness. Properties in flood plains have been identified and mapped through GIS.

Objectives:

- *Increase awareness and understanding of local government and general public of the need for hazard mitigation to protect persons and property from the impacts of natural hazards.*
- *Provide flood protection information to property owners in high risk areas*

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision making processes	Multi-hazard	Local	City Manager/ Planning with assistance from PTCOG
3B	Disseminate information on the benefits of purchasing **flood insurance** to property owners in flood hazard areas.	*Flood*	*Local*	*Planning*

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets

Background: Through hazard mitigation planning process and vulnerability assessment, City of Randleman has identified geographic areas at high risk for flood, and dam failure. Since there are existing structures in identified hazardous locations, the County's pursuit of a 911 reverse call system for warning specific areas under threat will benefit Randleman.

Objectives:

- *To identify vulnerable populations and provide emergency shelter.*
- *To protect and warn persons and existing development from flood damage, dam failure and other geographically specific hazard locations.*

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
4 A	Consider amending sign ordinances limiting height or size of signs	*High wind events*	Local	*Planning*
4 B	Identify and designate at least one emergency shelter in each municipality	*Multi hazard*	Local	*Emergency Management*
4 C	Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster	*Multi hazard*	*Homeland security funds*	*County EM/ covers all municipalities*
4 D	Identify potential inundation areas downstream of high hazard dams	*Dam Failure*	Local	*Planning/County EM*
4 E	Develop program to clear debris from culverts and storm drains in priority floodplains.	*Flooding*	Local;	*Water resources Public Works*
4F	Adopt tree planting ordinances or programs and landscaping practices that encourage planting trees less susceptible to damage	Ice damage	Urban & Community Forestry Grant Program	*Planning*
4G	Remove Polecat creek dam after water supply system change to Randleman Lake.	Flood/dam failure	Outside funding to be identified	*City Manager*

GOAL 5: To ensure disaster resistant future development

Objectives:
To protect future development from the impacts of natural hazards
Regulate future development to prevent damages and losses from natural hazard events

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
5 A	**Through existing subdivision regulations,** encourage that power, cable and telephone lines be buried	High Wind/ Ice/Snow	Local	Planning
5 B	Strengthen floodplain regulation to current standards. (New model regulation)	Flood	Local	Planning
5 C	**Adopt as city policy through land development plans:** Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	Multi-hazard	Local	Planning
5 D	Looking into safe growth management strategies for development downstream of dams and **incorporate into land use plans.**	Multi-hazard	Local	Planning

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each City Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

The City of Randleman will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the City Planner will provide a copy of the hazard mitigation plan to each member of the planning team. The City Planner will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1A	A		X	
Low	1B	N			X
Moderate	1C	C	X	X	
High	1D	N	X	X	
Moderate	1E	N	X	X	
High	1F	N		X	
Moderate	2A	C		X	
High	2B	C			X
Moderate	2C	N			X

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	3A	N	X	X	
Moderate	3B	N	X	X	
Moderate	4A	A		X	
Moderate	4B	C		X	
High	4C	N			X
Moderate	4D	N			X
High	4E	C	X	X	
Low	4F	N			X
Moderate	4G	N	X		X
Moderate	5A	N		X	
High	5B	N	X	X	
Moderate	5C	N		X	
Moderate	5D	N	X		X

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The Randleman Hazard Mitigation Task Force consist of the City Manager and Planning Director (and others at the discretion of the Manager) and will convene annually to review the County evaluation form, evaluate the Plan's effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the Plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the taskforce will review and update the plan after any *presidential disaster declaration* for the City of Randleman and ETJ.

6. Revisions and Updates:

Upon completion of the evaluation report, findings will be presented to the City Council with recommendations for updates and revision to amend Subsection 7: City of Randleman Hazard Mitigation Plan. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.
- Copies of the plan will be kept on hand at the public library and at the City Hall. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.
- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 8

Hazard Mitigation Plan for the Town of Seagrove

Community Profile: The Town of Seagrove is located south of the City of Asheboro along Rt. 220 and has a population of 246 persons. At an elevation of 750 feet, Seagrove's total land area is .7 square miles. The median household income is approximately $31,250 with a median house value of $63,300. Seagrove water is supplied by the City of Asheboro; it does not maintain its own water system. Seagrove is governed by a Mayor and City Council with four council members. The town clerk is its only employee. Seagrove law enforcement services are provided by Randolph County Sheriff's department. Fire services are provided by a local volunteer fire department. Seagrove has very limited capability to mitigate against natural hazards. There are no identified hazardous geographical areas within the town limits or its extraterritorial jurisdiction.

1. Statement of the Problem:

The Town of Seagrove is vulnerable to countywide hazards such as high wind events (e.g., severe thunderstorms, tropical and extra tropical systems), and snow and ice events. High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Repetitive Loss Structures:

The Town of Seagrove has no recorded repetitive loss structures.

Local Government Capability:

Seagrove does not have a planning department or employ a planner and has a ***very limited*** technical and financial capability to mitigate against natural hazards.

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The Town of Seagrove has adopted the following goals which are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of natural hazards. The goals are:

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Seagrove

In the following pages, mitigation actions for Seagrove are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: Seagrove has a very limited capacity for hazard mitigation.

Objectives: *Build local capacity for land use planning*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
1A	Adopt a flood prevention ordinance	Flood	Local	Town Clerk
1B	*Develop procedure for recording damage assessment information such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged, narrative description of damage (not just $value) for local use in hazard mitigation and land use planning.*	*Multi-hazard*	*Local*	*County EM and County Planning (covers all municipalities)*
1C	Become an NFIP member	Flood	Local	Town Clerk/Town Council

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure.

Background: The Town of Seagrove does not have critical facilities in hazard prone areas.

Objective: *To ensure a continuous power supply for critical facilities and services during and after an ice/snow storm*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
2 A	Evaluate generators and fuel needs and supply alternative sources of power	Ice/high wind	*Local*	*Town Clerk*

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the town does not have a formal outreach program for hazard mitigation or hazard awareness.

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision-making processes.	*Multi-hazard*	*Local*	*Town Clerk/PTCOG through hazard mitigation planning process/Randolph County*

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets.

Background: Seagrove will benefit from the county 911 reverse call system for warning specific areas under threat from a natural hazard.

Objectives:
To identify vulnerable populations and provide emergency shelter.

Strategies*:*	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
4 A	Identify and designate at least one emergency shelter in each municipality	*Multi hazard*	*Local*	*Town Clerk /County Emergency Management*
4 B	Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster	*Multi hazard*	*Homeland security funds*	*Countywide /Emergency Management*
4 C	Develop program to clear debris from culverts and storm drains in priority floodplains.	*Flooding*	*Local*	*Public Works*
4 D	Strengthen mobile home/manufactured home anchoring requirements	*High wind events*	*Local*	*Town Clerk*

GOAL 5: To ensure disaster resistant future development

Background: The Town of Seagrove is building capacity for land use planning.

Objectives:

To protect future development from the impacts of natural hazards
To regulate future development to prevent damages and losses from natural hazard events

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
5 A	Adopt as town policy: Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	*Multi-hazard*	*Local*	*Town Clerk/City Council*

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each Town Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

The Town of Seagrove will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the Town Clerk will provide a copy of the hazard mitigation plan to each member of the planning team. The Town Clerk will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1A	N		X	
High	1B	N	X	X	
High	1C	N	X	X	
Moderate	2A	C	X	X	
High	3A	N	X	X	
High	4A	C		X	
High	4B	N		X	X
Low	4C	N	X		X
Low	4D	A		X	
Low	5A	N	X		X
Low	5B	N	X		X

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The Town Clerk (and others at the discretion of the Town Council) will convene annually to review the County evaluation form, evaluate Subsection 8: Hazard Mitigation Plan for the Town of Seagrove of the plan for effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the Town Clerk (and others at the discretion of the Town Council) will review and update the plan after any *presidential disaster declaration* for the Town of Seagrove.

6. Revisions and Updates:

After completion of the evaluation report the taskforce will present the findings with recommendations for updates and revision to the City Council for amendment to Subsection 8: Town of Seagrove Hazard Mitigation Plan. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' commissioners or council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.
- Copies of the plan will be kept on hand at the public library and at the Town Hall. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.
- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 9

Hazard Mitigation Plan for the Town of Staley

Community Profile: The Town of Staley is located at the western edge of the County and has a population of 347 persons. It has more than doubled its size in the last ten years, but is not considered a potential high growth area. The town of Staley has very limited capability to mitigate against natural disasters. Staley does not have a planner, planning department or zoning board. Police, fire and rescue services for the town are provided by Randolph County government. Staley does not have a water supply system. Residents' water and wastewater needs depend on individual wells and septic systems. The median house value is below the state average. Residents of Staley are largely homeowners. The population density of Staley is significantly below state average.

1. Statement of the Problem:

There are no hazardous geographical areas within the town limits or its extraterritorial jurisdiction.

The Town of Staley is vulnerable to countywide hazards such as high wind events (e.g., severe thunderstorms, tropical and extra tropical systems), and snow and ice events.

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Repetitive Loss Structures:

The Town of Staley has no recorded repetitive loss structures.

Local Government Capability:

The Town of Staley is currently developing its zoning ordinance. Staley does not have a planning department or employ a planner.

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The Town of Staley has adopted the following goals which are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of natural hazards.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Staley

In the following pages, mitigation actions for Staley are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: Staley does not have a planning department or employ a planner. It is currently developing a zoning ordinance for the town

Objectives: *Build local capacity for land use planning*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
1A	Adopt a flood prevention ordinance	Flood	Local	Town Clerk
1B	*Develop procedure for recording damage assessment information such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged, narrative description of damage (not just $value) for local use in hazard mitigation and land use planning.*	*Multi-hazard*	*Local*	*County EM and County Planning (covers all municipalities)*
1C	Become an NFIP member	Flood	Local	Town Clerk/Town Council

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure.

Background: The Town of Staley does not have critical facilities in hazard prone areas.

Objective: *To ensure a continuous power supply for critical facilities and services during and after an ice/snow storm*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
2 A	Evaluate generators and fuel needs and supply alternative sources of power	Ice/high wind	Local	Town Clerk

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the town does not have a formal outreach program for hazard mitigation or hazard awareness.

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision making processes	Multi-hazard	Local	Town Manager

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets

Background: Staley will benefit from the county 911 reverse call system for warning specific areas under threat from a natural hazard.

Objective:

- *To identify vulnerable populations and provide emergency shelter.*

Strategies*:*	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
4 A	Identify and designate at least one emergency shelter in each municipality	*Multi hazard*	*Local*	*Town Manager /County EM*
4 B	Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster	*Multi hazard*	*Homeland security funds*	*Countywide /Emergency Management*
4 C	Develop program to clear debris from culverts and storm drains in priority floodplains.	*Flooding*	*Local*	*Public Works*
4 D	Strengthen mobile home/manufactured home anchoring requirements	*High wind events*	*Local*	*Town Clerk*

GOAL 5: To ensure disaster resistant future development

Background: The Town of Staley is building capacity for land use planning.

Objectives:

- *To protect future development from the impacts of natural hazards*
- *To regulate future development to prevent damages and losses from natural hazard events*

Strategy #	**Project or Policy**	**Hazard**	**Funding**	**Lead Dept.**
5 A	Adopt as countywide policy: Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	Multi-hazard	Local	Planning
5 B	Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	Multi-hazard	Local	Planning

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each Town Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

The Town of Staley will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the Town Clerk will provide a copy of the hazard mitigation plan to each member of the planning team. The Town Clerk will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1A	N		X	
High	1B	N	X	X	
High	1C	N	X	X	
Moderate	2A	C	X	X	
High	3A	N	X	X	
High	4A	C		X	
High	4B	N		X	X
Low	4C	N	X		X
Low	4D	A		X	
Low	5A	N	X		X
Low	5B	N	X		X

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The Town Clerk (and others at the discretion of the Town Council) will convene annually to review the County evaluation form, evaluate Subsection 9: Town of Staley of the plan for effectiveness, and make recommendations for revision or amendment as necessary.

The task force will then prepare an evaluation report summarizing the progress of the plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities
- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the Town Clerk (and others at the discretion of the Town Council) will review and update the plan after any *presidential disaster declaration* for the Town of Staley.

6. Revisions and Updates:

After completion of the evaluation report the taskforce will present the findings with recommendations for updates and revision to the City Council for amendment to Subsection 9: Hazard Mitigation Plan for the Town of Staley. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' commissioners or council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.
- Copies of the plan will be kept on hand at the public library and at the Town Hall. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.
- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

Subsection 10

Hazard Mitigation Plan for City of Trinity

Community Profile: Trinity is located in the northwest corner of Randolph County and has a population of approximately 6,794 persons. Trinity employs a city manager and city clerk. Recently, the city has hired its first planner. Trinity has relied upon Randolph County and the Piedmont Triad Council of Governments for technical assistance. It does not have a police or fire department; Randolph County Sheriff department provides law enforcement services. Fire service is provided by Fair Grove and Guil-Rand Volunteer Fire Departments. Davidson Water, Inc. is the water supplier for the City. Trinity does not own or maintain a water supply system. Trinity is a NPDES Stormwater Phase II community and as such is developing a stormwater management plan in accordance with the requirements of Phase II.

1. Statement of the Problem:

Overall, Trinity is vulnerable to high wind events such as those associated with severe thunderstorms, tropical and extra tropical systems, snow and ice events, river and stream flooding, flash flooding, and drought.

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are possible with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) Additionally, these high wind events are likely to carry with them the high probability of flash flooding and/or river and stream flooding, as well as lightning and hail.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Flood Hazard

Trinity has a high flood risk for southwest Trinity. All totaled, Trinity has over 691 people exposed to flood hazards in 256 occupied units in the SFHA at an estimated value of $22,929,000. In addition, there is one EHS facility located in the Uwharrie/Lake Reese watershed balance area, and three high hazard dams located in the area.

Repetitive Loss Structures:

The City of Trinity has no recorded repetitive loss structures.

Local Government Capability

Local government capability to mitigate against natural hazards is limited at this time. Trinity seeks to build capacity to mitigate hazards through developing land use planning tools.

2. Hazard Mitigation Goals

The goals serve as the basis for development of the more specific plan objectives and hazard mitigation activities. The multi-jurisdictional planning group has developed the following goals which are broad policy statements aimed at guiding and directing future activity so that persons, property, government, and infrastructure are protected from the impacts of Natural Hazards.

1. To enhance local government capability to lessen the impacts of all natural hazards

2. To identify and protect critical services, buildings, facilities and infrastructure that are at risk of damage due to natural hazards.

3. To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

4. To protect persons and property, as well as reduce damage and loss to existing community assets.

5. To ensure disaster resistant future development

3. Hazard Mitigation Strategies for Trinity

In the following pages, mitigation actions for Trinity are listed and assigned specific implementation measures which include the assignment of responsibilities to local government departments and/or specific staff, along with the time frame for completion for each proposed mitigation action. When applicable, potential funding sources were also listed.

GOAL I: To enhance local government capability to lessen the impacts of all natural hazards

Background: City of Trinity government capability includes:

- Zoning ordinance
- Subdivision ordinance
- Watershed protection ordinance

Objective: To increase local government capability to mitigate against natural hazards

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
1A	Employ a planner	Multi hazard	Local	City Manager
1B	Create planning department	Multi hazard	Local	City Mang/ City Council
1C	Adopt flood prevention ordinance	Flood	Local	City Manager
1D	Update land use plan	Multi hazard	Local	City Manager
1E	Develop a Stormwater management plan as **part of NPDES Phase II program requirement**	Flood	Local	City Manager
1F	**Review existing capital improvement plan** to ensure capital improvements support mitigating activities and are not counter to hazard mitigation	Multi hazard	Local	City Manager
1G	**Update existing zoning ordinance** to include considerations for hazard mitigation	Multi hazard	Local	City Manager
1H	**Update subdivision ordinance** to include considerations for hazard mitigation	Multi hazard	Local	City Manager
1I	**Develop a section of existing Capital Improvement Plan** devoted solely to hazard mitigation projects to allow for effective financial management of capital projects which have hazard mitigation ramifications	Multi hazard	Local	City Manager
1J	Become National Flood Insurance Program Member	Flood	Local	City Manager
1K	Partner with County to use GIS resources	Multi hazard	Local	City Manager
1L	*Develop procedure for recording damage assessment information such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged) for local use in hazard mitigation and land use planning.*	*Multi hazard*	*Local*	*County EM / County Planning*
1M	Look in to need for emergency water supply capability as part of regular local water supply planning process	Multi hazard	Local	City Manager

GOAL 2: To identify and protect critical services, buildings, facilities and infrastructure that are at risk of damage due to natural hazards

Background: City of Trinity does not have any critical facilities located in a geographically hazardous area. However, alternative power sources are necessary when natural disasters result in large-scale power outages.

Objective: *To ensure a continuous power supply for critical facilities and services during and after an ice/snow storm*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
2 A	Procure generators and fuel for alternative sources of power for administrative building	Ice/snow storm High wind events	*Local*	*City Manager*
2 B	Strengthen mobile home anchoring requirements.	Ice/snow storm High wind events	*Local*	*City Manager /Planner when hired*

GOAL 3: To develop an effective public awareness/education/outreach program for natural hazards the county and municipalities are most likely to experience.

Background: Currently the City does not have a formal outreach program for hazard mitigation or hazard awareness. Properties in flood plains have been identified and mapped through the County GIS system.

Objectives:

- *Increase awareness and understanding of local government and general public of the need for hazard mitigation to protect persons and property from the impacts of natural hazards.*
- *Provide flood protection information to property owners in high risk areas*
- *Increase public knowledge of importance of flood insurance.*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
3 A	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision-making processes.	Multi-hazard	Local	City Manager with assistance from PTCOG
3 B	Disseminate information on the benefits of purchasing **flood insurance** to property owners in flood hazard areas (targeting Caraway Creek Floodplain, Uwharrie River and Little Uwharrie River floodplains) **Insert as envelope stuffers in regular mailings to residents. (yearly)**	Flood	Local	County EM
3 C	Hold yearly "Flood Hazard Awareness Week" countywide	Flood	Local	City Manager /County EM

GOAL 4: To protect persons and property and reduce damage and loss to *existing* community assets

Background: Through hazard mitigation planning process and vulnerability assessment, City of Trinity has identified geographic areas at high risk for flood, and dam failure. Since there are existing structures in identified hazardous locations, the County's pursuit of a 911 reverse call system for warning specific areas under threat, especially from dam failure and flooding.

Objectives:

- *To identify vulnerable populations and provide emergency shelter.*
- *To protect and warn persons and existing development from flood damage, dam failure and other geographically specific hazard locations.*

Strategies	Project or Policy	Hazard	Funding	Lead Dept.
4A	Identify and map mobile home parks	Multi – hazard	Local	City Manager
4B	Identify and designate at least one emergency shelter in each municipality	Multi hazard	Local	City Manager/County Emergency Management
4C	*Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster*	*Multi hazard*	*Homeland security funds*	*County Emergency Management*
4D	Develop program to clear debris from culverts and storm drains in priority floodplains. **Part of stormwater management plan.**	Flooding	Local	Water resources Public Works

GOAL 5: To ensure disaster resistant future development

Background: City of Trinity is in the beginning stages of revising their zoning and subdivision ordinance and plans to build their capacity for land use planning.

Objectives:

- To protect future development from the impacts of natural hazards
- Regulate future development to prevent damages and losses from natural hazard events

Strategy #	Project or Policy	Hazard	Funding	Lead Dept.
5 A	**Through existing subdivision regulations**, encourage that power, cable and telephone lines be buried	*High Wind/ Ice/Snow*	Local	*City Manager/ Planning when developed*
5B	**Include in land use plans** to Consider street connectivity in all new subdivisions to allow for multiple access points.	*Multi hazard*	Local	*City Manager/ Planning when developed*
5 C	**Include in land use plan as citywide policy,** wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	*Multi-hazard*	Local	*City Manager/ Planning when developed*
5 D	**Consider amending subdivision ordinance** to allow clustering to maximize density while preserving high hazard areas (areas prone to landslide, flood, erosion)	*Multi-hazard*	Local	*City Manager/ Planning when developed*

4. Implementation

Plan implementation will start from the time that it is adopted. Work has already started on several of the mitigation strategies identified in the Mitigation Strategies section. Each City Department will be responsible for pursuing the development of policies, programs, ordinance revisions, and regulations as they are assigned.

The City of Trinity will create a process to incorporate requirements in this hazard mitigation plan into the floodplain ordinance, subdivision ordinance and zoning activities. During the planning process for all new and updated local planning documents, such as a land development plan, comprehensive plan, or capital improvement plan, the Town Planner will provide a copy of the hazard mitigation plan to each member of the planning team. The Town Planner will ensure that all goals and strategies of new and updated local planning document s are consistent with the hazard mitigation plan and will not contribute to increased hazards in the jurisdiction.

A process for prioritization of identified hazard mitigation strategies was performed. The hazard mitigation planning team used the following criteria for prioritization of strategies:

1. Cost-benefit review
2. Results of vulnerability assessment
3. Results of hazard identification and analysis
4. Results of capability assessment.
5. Effectiveness in meeting hazard mitigation goals.

The results of the capability assessment as well as the cost-benefit review were given special emphasis. The prioritization of the strategies is designated through listing them as high, moderate or low priority. Time frames have been categorized as short-term and long-term. Short-term strategies are those that can be implemented within existing resources and authorities and should be completed within a time frame of 6 months to 2 years. Short-term activities are generally a higher priority and include those activities that should be implemented immediately following the adoption of this plan. Long-term strategies may require new or additional resources or authorities and should be organized to begin implementation within a timeframe of 3 – 5 years.

Priority	**Strategy#**	**New (N) Continuation (C) Amendment (A)**	**Ongoing (no end date)**	**Short Term (resources, and authority available now)**	**Long Term (resources or authority currently not available)**
High	1A	N		X	
High	1B	N		X	
High	1C	N		X	
High	1D	A		X	
High	1E	N			X
Moderate	1F	C		X	
High	1G	A		X	
High	1H	A		X	
Moderate	1I	N			X
High	1J	N	X	X	

Priority	Strategy#	New (N) Continuation (C) Amendment (A)	Ongoing (no end date)	Short Term (resources, and authority available now)	Long Term (resources or authority currently not available)
High	1K	C	X	X	
High	1L	N	X		X
High	1M	N	X	X	
Low	2A	C			X
High	2B	A		X	
High	3A	N	X	X	
High	3B	N	X	X	
Low	3C	N	X	X	
Moderate	4A	C		X	
Moderate	4B	C		X	
High	4C	N	X		X
High	4D	N	X		X
High	5A	C		X	
Low	5B	N			X
High	5C	N		X	
High	5D	N		X	

5. Monitoring, Evaluating, and Reporting Progress

The evaluation form in Appendix D will be used by County staff to begin the evaluation process. The base year statistics used in calculating progress will be the year prior to each five-year cycle. This form will be completed and submitted to the County Hazard Mitigation Taskforce, as well as all City and Town Managers (where there is no Town Manager the form will be sent to the Town Clerk).

The City Manager, and others at the Manager's discretion, will convene annually to review the County evaluation form, evaluate the Plan's effectiveness, and make recommendations for revision or amendment as necessary.

The City Manager or delegate will then prepare an evaluation report summarizing the progress of the Plan. The evaluation and progress report should consider the following questions.

- Have lead agencies participated as originally proposed?
- Have outcomes been adequate?
- What problems have occurred in the implementation process?
- Have members of the public been adequately involved?

The report will include:

- The status of benchmarks and indicators,
- Difficulties or impediments during implementation;
- Changes in County priorities

- Recommendations for changes, revisions, or amendments to the plan.

In addition to the annual review, the City Manager will review and update the plan after any *presidential disaster declaration* for the City of Trinity.

6. Revisions and Updates:

After completion of the evaluation report the taskforce will present the findings with recommendations for updates and revision to the City Council for amendment to Subsection I0: Hazard Mitigation Plan for the City of Trinity. As updates occur, the date, reason and responsible party should be noted. Updates or revisions which affect the plan as a whole or impacts any other jurisdiction(s) will require a presentation of findings and recommendations to, and ultimate adoption by, those jurisdictions' council members.

When changes to any part of this plan entail substantial budgetary considerations, the revisions or amended plan must be submitted to the NCDEM and FEMA for review.

At the end of every five-year cycle, the Randolph County Hazard Mitigation Taskforce will convene a planning committee with representatives from each jurisdiction in the county. The committee will review and update the hazard profile, vulnerability assessment and local capability section and submit these to the County Manager and all City and Town Managers (where there is no town manager, the town clerk) for their review, and subsequent adoption by the County Commissioners and City/Town Councils.

7. Continued Public Involvement

To facilitate continued public involvement in the planning process:

- The public will be invited to participate in the annual review of the plan.

- Copies of the plan will be kept on hand at the public library and at the City Hall. The plan will have a contact address, email address, and phone number of the person responsible for keeping track of public comments on the plan.

- The plan will be available on the Randolph County Website, and will contain an email address and phone number the public can use for submitting comments and concerns about the plan.

APPENDIX A
NATURAL HAZARD PROFILE FOR
RANDOLPH COUNTY AND ALL MUNICIPAL JURISDICTIONS

Introduction

In this section, natural hazards such as dam failure, drought, earthquakes, flooding, flash flooding and subsequent river/stream erosion, heat wave, high wind events such as tropical storms, tropical depressions, and extra tropical storms (nor'easters), landslides, severe thunderstorms, sinkholes, tornadoes, wildfires, and winter storms, both ice- and snow- events are profiled. When possible the likelihood, intensity, potential impact and a determination of vulnerable geographic areas was determined through analysis of various data sources.

In order to identify natural hazards and determine their potential impact on the county and each separate jurisdiction, data on hazard events since 1950 was collected to determine if there are patterns of occurrence, or if hazards are geographically specific to an area. The primary source of data on thunderstorm, tornado, and cyclonic events, flooding, hail, extreme temperature, ice storms and snow events is the National Climatic Database. In some instances, this database provides information on events over the last 50 years. However, data prior to 1979 is incomplete. It is likely some hazardous events were not recorded. Additionally, the data gives no description of the event and little information on location except to say that the event occurred in Randolph County. The data from 1979 to the current year is progressively more detailed and the more hazard events have been recorded. Where data was lacking, other sources have been examined and used to supplement the NCDC recorded event history. These data sources are referenced throughout the hazard profile.

The National Climactic Database lists no recorded occurrences of landslides, sinkholes, wildfires, drought, earthquakes, or dam failures. Data for these hazard events were gathered from state and federal agency data and information. For landslides, sinkholes, wildfires, data limitations were significant. These hazards where profiled using supplementary material and information referenced in their respective sections.

When possible, GIS was used to map historic occurrences of natural hazard events. However, neither Randolph County nor its municipalities have a system of tracking natural hazard events, damage assessments or impacts on the population and the built environment.

Table 1: Likelihood of Occurrence

Likelihood	Frequency of Occurrence
Unlikely	Less than one percent probability in the next year, or less than one chance in the next 100 years.
Possible	Between one percent and ten percent probability in the next year or at least one chance in the next 100 years
Likely	Between 10% to 100% probability in the next year or one chance in the next ten years
Highly Likely	Near 100% probability in the next year

Table 2: Probable Impact

Probable Intensity	Probable Impact
Negligible or none	Minimal property damage and minor injuries only; Less than 5% of property damaged
Limited	Some severe injuries, shutdown of critical facilities for two days or more; 5% to 10% of property damaged, including agricultural (both crop and livestock)
Critical	Death possible, multiple injuries; shutdown of critical facilities for up to a week; 10% to 25% of property damaged, including agricultural (both crop and livestock)
Catastrophic	Multiple injuries and deaths; shutdown of critical facilities for more than one week; more than one quarter of property in the area damaged or destroyed

Table 3: Area vulnerable

Proportion of County/City Vulnerable to hazard	
Location specific	Less than 10% of area vulnerable
Sizeable area	10% to 49% of area vulnerable
Substantial area	50% to 99% of area vulnerable
Countywide area	100% of area vulnerable

Dam Failure

Occurrences – past ten years	1 low-hazard dam
Likelihood of occurrence	possible
Intensity & impact to Randolph County	limited - critical
Area vulnerable	location specific

Dams are relied on to generate power, provide communities with drinking water, and protect individuals from floods. Randolph County has 199 dams located throughout the county. The 23 high-hazard dams are generally located southwest of urban areas with no reported failures in the last ten years. Of all 199 dams in Randolph County (139 low, 37 intermediate, and 23 high hazard), there was one reported failure within the past ten years. A low hazard (Class A) river dam failed during a flood but was not discovered until flood waters receded and the dam was exposed. Actual failure caused no significant damage – all damage was flood related.

Dam failures happen for one of six reasons:

(1) overtopping, caused by water spilling over the top of the dam,
(2) structural failure of materials used in dam construction,
(3) stability failure of the foundation or other features that hold the dam in place,
(4) cracking caused by movements like the natural settling of a dam,
(5) inadequate maintenance and upkeep, and
(6) piping when seepage through a dam is not properly filtered and soil particles continue to progress and form sinkholes in the dam.

Dams are innately hazardous structures (Association of State Dam Safety Officials, 1999). Failure can result in the release of the reservoir contents that includes water, mine wastes or agricultural refuse causing negative impacts upstream or downstream or at locations remote from the dam.

Inspections By The Dam Safety Department

Under Dam Safety administrative rule:

> "(1) All class A (low) and B (intermediate) dams shall be inspected at least once every five years. (2) Class C (high hazard) dams shall be inspected at least once every two years. At any time an inspection indicates that a dam may not perform satisfactorily or that the hazard classification has changed, the Director may require a detailed investigation at the owners expense to determine the required remedial action, if any."
> ***from Dam Safety Law of 1967: § 143-215.32. Inspection of dams.***

According to officials at the Division for Dam Safety, NC Department of Natural and Environmental Resources, Class C/high-hazard dams are inspected yearly; intermediate hazard dams are inspected every three years; low-hazard dams are inspected every five years.

Dam Hazard Classification: Each dam is rated as to its hazard potential or the probable damage that would occur if the structure failed, in terms of loss of life, economic and environmental damage. A high-hazard dam may also be referred to as a Class C dam; intermediate-hazard – Class B; and low-hazard dam – Class A. Even probable future development downstream from the dam which would be affected by its failure is considered in determining classification. These hazard classifications do not refer to the likelihood or possibility of failure, or the condition of the dam.

Figure 1: Hazard Classification for Dams

	When probable loss of human life (one or more) (including probable loss of life due to beached roadway or bridge on or below the dam),
High Hazard	or possible economic damage of more than $200,000
	or 250 vehicles per day at 1000 ft visibility 100 vehicles per day at 500 ft visibility 25 vehicles per day at 200 ft visibility.
Intermediate Hazard	Damage to highways, interruption of services or Economic damage of $30,000 to $200,000 or 25 to 250 vehicles per day.
Low Hazard	Less than 25 vehicles per day or Less than $30,000 in damage

Source: North Carolina Department of Natural Resources, Division of Land Quality, Dam Safety Administrative Rules

Exempt Dams

An exempt dam would be a dam which is exempt from the Dam Safety Law of 1967. A dam is exempt:

1. If it has been constructed by the United States Army Corps of Engineers, the Tennessee Valley Authority, or another agency of the United States government, when the agency designed or approved plans for the dam and supervised its construction.
2. If the dam was constructed with financial assistance from the United States Soil Conservation Service.
3. If the dam is licensed by the Federal Energy Regulatory Commission, called a FERC dam.
4. If the dam is used in connection with electric generating facilities under the jurisdiction of the North Carolina Utilities Commission (unless the dam is operated by a small power producer).
5. If the dam is under a single private ownership and provides protection only to land or other property under the same ownership and that does not pose a threat to human life or property below the dam.
6. If dam that is less than 15 feet in height or that has an impoundment capacity of less than 10 acre-feet, unless the Department determines that failure of the dam could result in loss of human life or significant damage to property below the dam.

A breached dam no longer poses a hazard so long as it is not repaired and in use. Breached dams are still inventoried at their hazard classification level and still inspected according to that level. These dams pose no threat so long as they remain breached.

Drought

Occurrences – 50 years	Eight periods where Palmer drought index reached -3 for > 6 months
Likelihood of occurrence	likely
Intensity & impact to Randolph County	limited
Area vulnerable	countywide

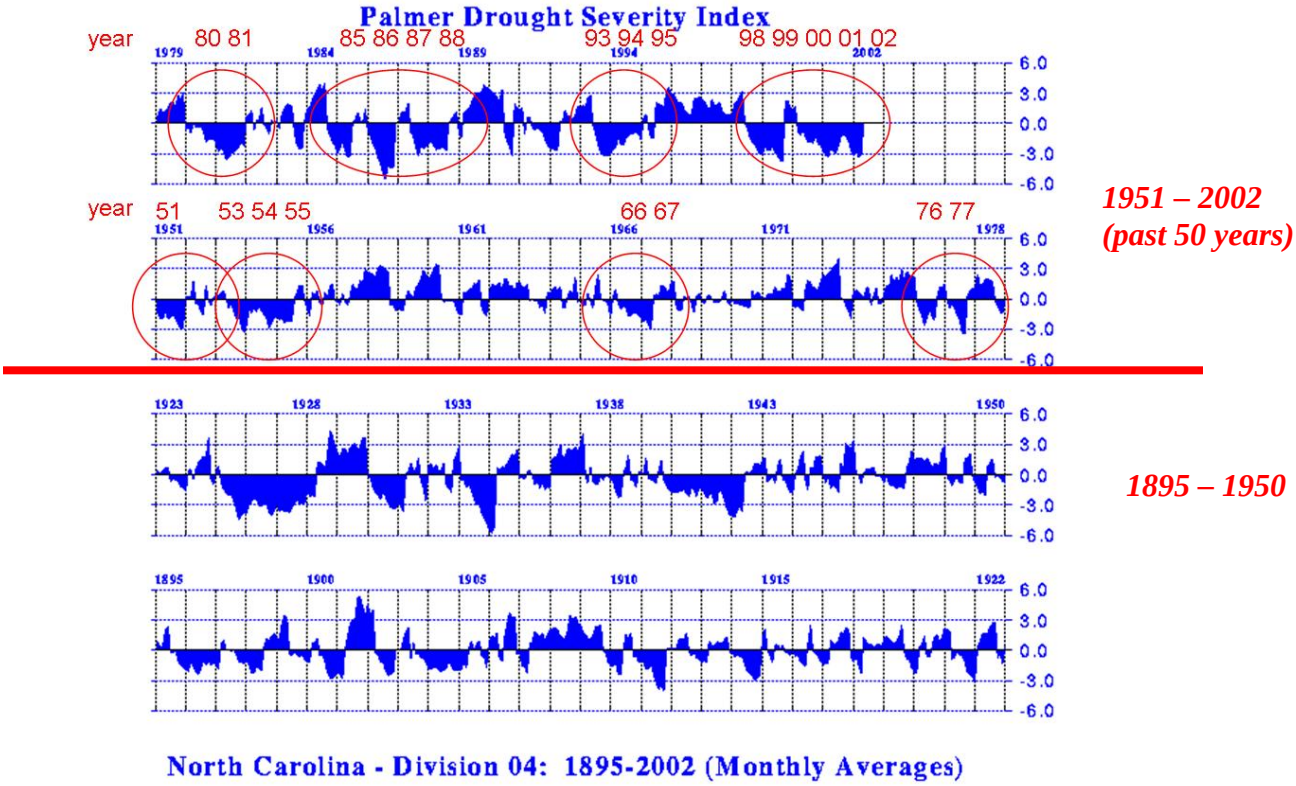
Drought is a recurrent feature in the North Carolina climate. It is a deficiency of precipitation over an extended period of time, usually a season or more *(NC Natural Hazards Mitigation Plan (Section 322) page 33)*

Actual drought impacts result from the demand people place on water supply. Actual water supply during drought episodes would indicate whether or not the area is dramatically affected by these natural events. It is likely that as the area grows in population and experiences increasing demands for water, these cyclical drought episodes will have a greater impact. The Palmer drought index is a drought-monitoring tool useful for determining periods of deficient precipitation over an extended period of time. The Palmer drought index ranges from -6 to +6 with negative values denoting dry spells.

Table 1: Palmer Drought Index

Category	Description	Possible Impacts	Palmer Drought Index	% of Normal Precip
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures; fire risk above average. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered.	-1.0 to -1.9	<75% for 3 months
D1	Moderate Drought	Some damage to crops, pastures; fire risk high; streams, reservoirs, or wells low, some water shortages developing or imminent, voluntary water use restrictions requested	-2.0 to -2.9	<70% for 3 months
D2	Severe Drought	Crop or pasture losses likely; fire risk very high; water shortages common; water restrictions imposed	-3.0 to -3.9	<65% for 6 months
D3	Extreme Drought	Major crop/pasture losses; extreme fire danger; widespread water shortages or restrictions	-4.0 to -4.9	<60% for 6 months
D4	Exceptional Drought	Exceptional and widespread crop/pasture losses; exceptional fire risk; shortages of water in reservoirs, streams, and wells, creating water emergencies	-5.0 or less	<65% for 12 months

Figure 2: Historical Palmer Drought Index for Division 4 (includes Randolph County) 1895-2002



Source: NOAA Climate Diagnostics Center, website - http://www.ncdc.noaa.gov/oa/climate/onlineprod/drought/xmgrg3.html

Randolph County, in NC Climate Division 4 has experienced at least eight periods (from six months to five years in length) where the monthly value that is generated indicating the severity of a dry spell exceeded -3 for an estimated period of > 6 months.

Drought is very likely to occur in a cyclical pattern throughout Randolph County. Drought involves a moisture deficit leading to social, environmental or economic impacts. Water shortages could result in widespread water restrictions. However, Randolph County and most of its municipal jurisdictions have not reported imposing water restrictions at any time in the past 50 years. Water supply sources report that, even with continued population growth, water demand will not exceed 80% of supply in Asheboro, Seagrove, Ramseur, and Randleman. The Town of Liberty and is served by eight wells and reportedly, demand will reach 65% by 2020. Archdale estimates that demand will exceed 80% of supply by 2020, however, they are members of Piedmont Triad Regional Water Authority (PTRWA) and will have access to water supplied through the Randleman dam project.

During periods of severe to extreme drought, crops and pasture losses are likely and would result in major crop/pasture loss should the drought continue to an extreme level. Wildfire risk is very high to extreme. Although the intensity of drought is likely to be severe to extreme according to the drought index, the intensity as determined by the hazard analysis can be categorized as limited. Although shutdown of critical facilities is unlikely, agricultural damage is possible.

Earthquake

Occurrences – past ten years	0
Likelihood of occurrence	possible
Intensity & impact to Randolph County	negligible
Area vulnerable	countywide

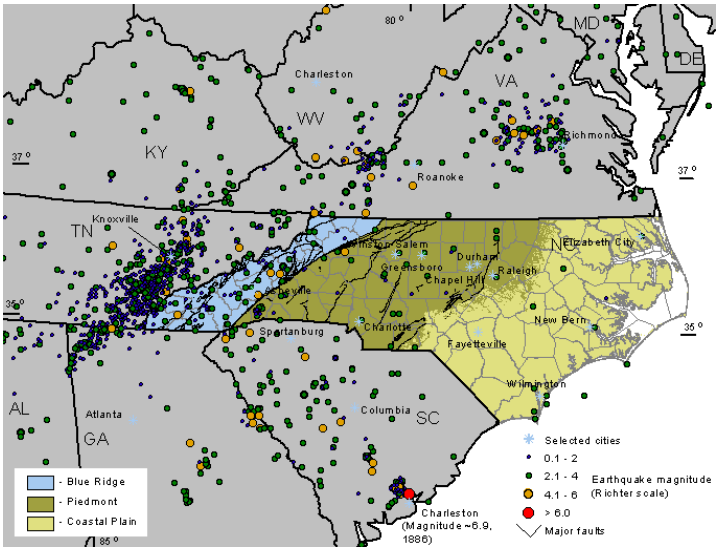
The NC Department of Emergency Management rates Randolph County's relative risk of an earthquake as "low" (NC Division of Emergency Management, Local Natural Hazards, Sept. 2002). Approximately two-thirds of North Carolina is subject to earthquakes on the Eastern Tennessee Seismic Zone and the Charleston Fault in South Carolina with the western and southeast region most vulnerable.

Earthquakes are commonly measured by their magnitude and intensity. Magnitude is the measure of total energy released while intensity is the resulting degree of damage by an earthquake. The intensity of an earthquake is measured by the Richter scale where a earthquake of a magnitude of 2.5 represents a mild tremor and little to no damage while an earthquake of a magnitude of 7.0 or greater represents a major tremor where changes to the Earth's surface occur and vast damage is expected.

Table 2: Modified Mercalli Scale with Richter Scale equivalent

Richter Scale	Mercalli Scale	Intensity	Description of Effects
	I	Instrumental	Detected only on seismographs
<4.2	II	Feeble	Some people feel it
	III	Slight	Felt by people resting; like a truck rumbling by
	IV	Moderate	Felt by people walking
<4.8	V	Slightly Strong	Sleepers awake; church bells ring
<5.4	VI	Strong	Trees sway; suspended objects swing, objects fall off shelves
<6.1	VII	Very Strong	Mild alarm; walls crack; plaster falls
	VIII	Destructive	Moving cars uncontrollable; masonry fractures, poorly constructed buildings damaged
<6.9	IX	Ruinous	Some houses collapse; ground cracks; pipes break open
<7.3	X	Disastrous	Ground cracks profusely; many buildings destroyed; liquefaction and landslides widespread
<8.1	XI	Very Disastrous	Most buildings and bridges collapse; roads, railways, pipes and cables destroyed; general triggering of other hazards
	XII	Catastrophic	Total destruction; trees fall; ground rises and falls in waves

Figure 2: Epicenter of earthquakes over past twenty years

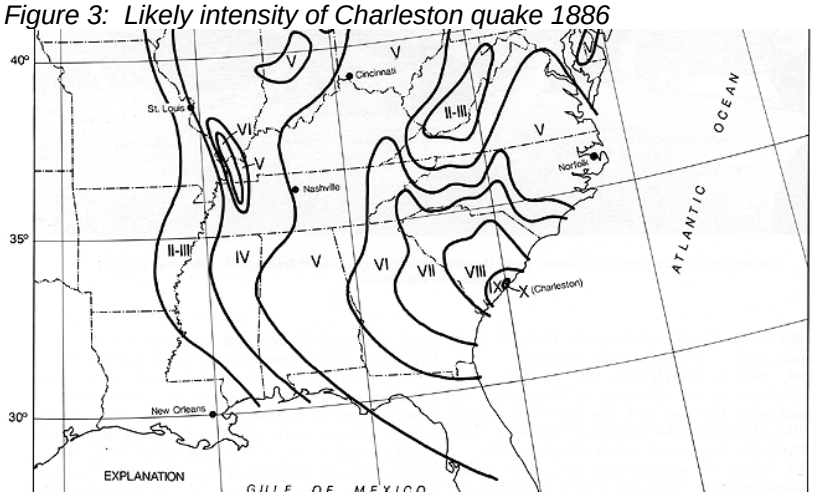


North Carolina Geological Survey, 1985, Geologic Map of North Carolina (scale 1:500,000). Earthquake data from 1698-1992 are from Virginia Polytechnical and State University. (http://wwwneic.cr.usgs.gov/).

Figure 1 shows the epicenters of earthquakes occurring in and around North Carolina in the past 20 years. Epicenters are generally concentrated in the active Eastern Tennessee Seismic Zone. Since 1928, there has not been an earthquake in this seismic zone with intensity higher than IV (moderate) as measured by the modified Mercalli scale of earthquake intensity.

The most notable earthquake in the Carolinas was the Charleston quake of 1886. This earthquake caused considerable damage in both Charlotte and Raleigh (probably intensity level of X – Disastrous, or greater than 7. 3 on the Richter scale). Damage was reported in a number of areas within a 200-mile radius of Charleston. The initial shock was felt over 1000 miles away in Illinois. Randolph County likely experienced an intensity of VI or VII (see figure 2). No substantial damage or destruction has been caused by an earthquake in NC in the past 80 years.

Figure 3: Likely intensity of Charleston quake 1886



USGS National Earthquake Information Center URL:
http://neic.usgs.gov/neis/eqlists/USA/1886_09_01_iso.html

Subsequent minor earthquakes have occurred in North Carolina in 1926, 1928, 1957, 1959, 1971, 1973, and 1976. In the Eastern Tennessee seismic zone, the strongest earthquake was magnitude 4.6 which occurred in 1973. No evidence for larger prehistoric shocks has been discovered, yet the micro earthquake data suggest consistent stress accumulation within the area. [1]

The NC Department of Emergency Management rates Randolph County's relative risk of an earthquake as "low" *(NC Division of Emergency Management, Local Natural Hazards, Sept .2002)*.

Flood

Occurrences – *since 1995*	ten
Likelihood of occurrence	highly likely
Probable Intensity & impact to Randolph County	limited
Area vulnerable	

Flash flooding*:* Hazard threat is generally higher for urban or storm water flooding (flash flooding) than for river or stream flooding. Incidences of storm water flooding associated with severe thunderstorms or localized heavy rains are on the increase, particularly in the municipalities. Storm water runoff is rainfall or snow, which melts and

[1] Land-Of-Sky Regional Council, "Storm Water Problems and Impacts: Why all the fuss?" fact sheet. URL: http://h2o.enr.state.nc.us/su/PDF_Files/Land_of_Sky_factsheets/FactSheet_1.pdf

runs off the ground or impervious surfaces in developed areas. This runoff may drain into streams, rivers or lakebeds, or, as in urban areas, the runoff flows into streets and storm sewers. Storm drainage systems, unlike sanitary sewage systems, then directs the flow of untreated runoff water into lakes, streams, and rivers.

Changes in land use and increasing development increases storm water runoff. Increased impervious surface coverage (parking lots, urban development) decreases the amount of water that can naturally infiltrate into the soil and increases the volume and rate of storm water runoff. The result is more frequent and severe flooding and increased potential for injury or death and damage to public and private property.[2]

***Stream/River flooding*:** Randolph County flood zones are located throughout the county. Past flooding occurring from overflowing rivers and streams in Randolph County has been typically associated with the remnants of tropical storms. Reported property damage has been negligible. The NC Department of Emergency Management rates Randolph County's flood risk as "low."

In the past eight years, the National Climatic Data Center database shows ten flood events. Road closures reported in majority of flood events; crop damage in 1997 due to system ahead of tropical storm. During these ten recorded flashflood events the following roads were closed do to flood waters: Farmer Denton Road; Bescher Creek; portion of NC 64; portion of NC 62; portion of US301; NC 705 near Moore; and an unidentified 40 foot section of rural road near Seagrove was reported washed out.

Hurricanes, Tropical and Extra-Tropical Systems

Hurricanes passing within 50 miles of Randolph County	none
Likelihood of occurrence	Category 1 possible; category 2-5 unlikely
Tropical storms passing within 50 miles of Randolph County	2
Likelihood of occurrence	likely
Tropical, sub-tropical, or extra-tropical depressions, passing within 50 miles	8
Likelihood of occurrence	likely
Intensity and impact to Randolph County	limited
Area vulnerable	countywide

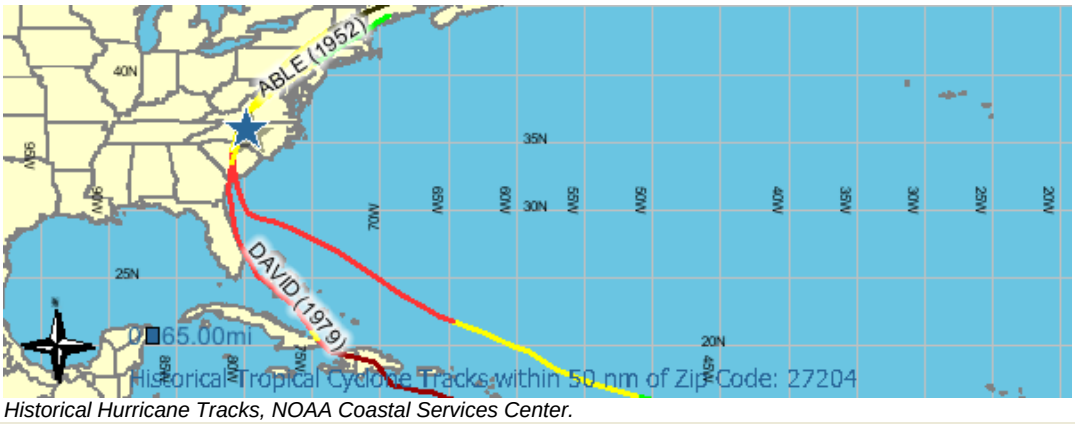
"Tropical" cyclonic events form over a tropical ocean and have a center of air warmer than the surrounding air. The strongest winds are lower to the ground. Tropical Depressions have counterclockwise winds blowing around a center of low pressure and contain maximum sustained one-minute winds at ten-meter elevation of 38 miles per hour or less. Tropical storms are named storms with maximum sustained one-minute winds at ten-meter elevation of 39 to 73 miles per hour. Hurricanes have sustained one-minute winds at ten-meter elevation of at least 74 miles per hour.

According to the Saffir Simpson scale, a "category one" hurricane has wind speeds of between 74-95 mph. Damage from a category one storm primarily occurs to unanchored mobile homes, shrubbery, and trees. Some damage to poorly constructed signs also occurs. The dense wall of thunderstorms surrounding the eye has the strongest winds within the storm moving outward to about 25 miles; winds diminish

significantly as distance from the eye wall increase. Although there is considerable variation, typical hurricanes are about 300 miles wide.

In contrast, an extra-tropical storm (nor'easter) forms outside the tropics and forms a rotation with the center of the storm colder than surrounding air. In these storms the strongest winds are in the upper atmosphere. The following are the cyclonic events that have come within 50 nautical miles of Randolph County over the last 50 years.

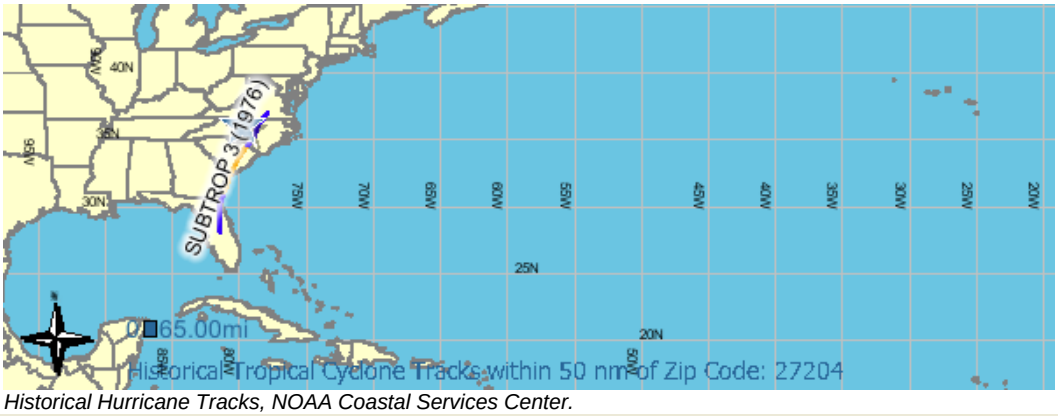
Figure 2: Name, Year and Path of named tropical Storms within approximately 60 statute miles of Randolph County



Historical Hurricane Tracks, NOAA Coastal Services Center.

Event Date	Name	Type of Storm	Impact on Randolph County
9/5/1979	David	Tropical Storm	
8/31/1952	Able	Tropical Storm	

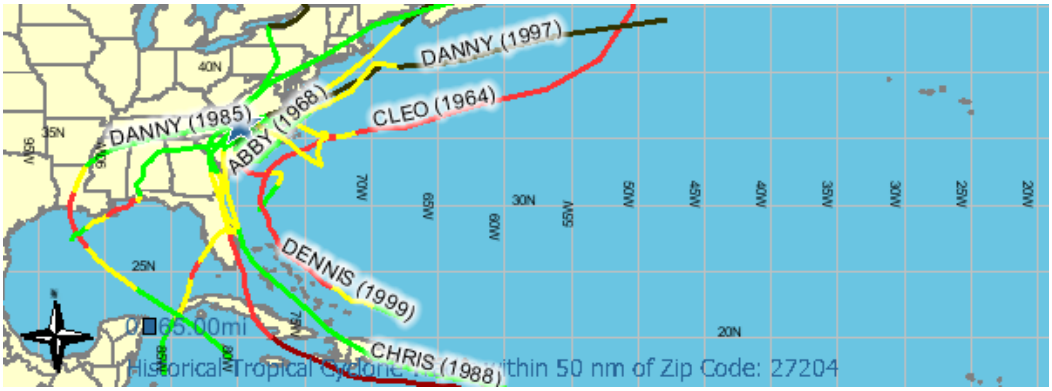
Figure 3: Name, Year and Path of Sub-tropical Depressions within 50 Nautical miles of Randolph County



Historical Hurricane Tracks, NOAA Coastal Services Center.

Event Date	Name	Type of Storm	Impact on Randolph County
1976	Unnamed	Subtropical Depression	

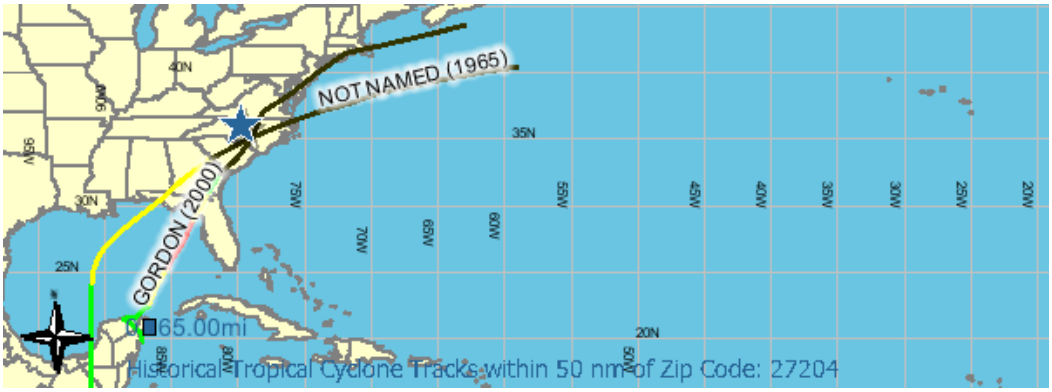
Figure 4: Name, Year and Path of Tropical Depressions within approximately 60 statute miles of Randolph County



Historical Hurricane Tracks, NOAA Coastal Services Center.
URL: http://hurricane.csc.noaa.gov/hurricanes/

Event Date	Name	Type of Storm	Impact on Randolph County
9/4/1999	Dennis	Tropical Depression	Low land flooding
9/6/1997	Danny	Tropical Depression	Wind damage, power outages, localized flooding
8/29/1988	Chris	Tropical Depression	Passed west of Randolph County; localized flooding
1968	Abby	Tropical Depression	Path was within 25 nautical miles of Randolph County
1964	Cleo	Tropical Depression	Path within 25 nautical miles of Randolph County

Figure 5: Name, Year and Path of Extra-tropical Depressions approximately 60 statute miles of Randolph County



Historical Hurricane Tracks, NOAA Coastal Services Center.

Event Date	Name	Type of Storm	Impact on Randolph County
2000	Gordon	Extra-tropical Depression	Not reported
1965	Unnamed	Extra-tropical depression	Not reported

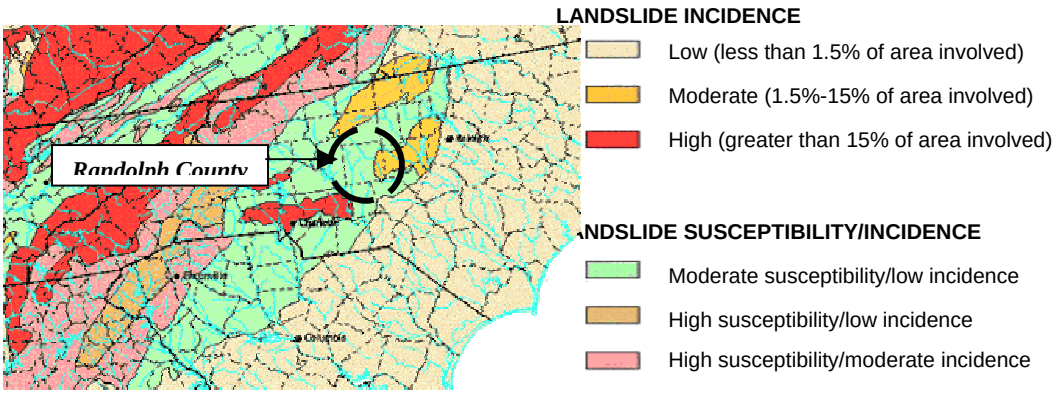
According to the National Climatic Data Center, a “hurricane” has never struck the piedmont area (including Randolph County) of NC. As hurricanes have struck the NC or SC coast, they typically downgrade quickly so that by the time they reach our area, the storm is classified as either a tropical storm or a tropical depression. Tropical storms and tropical depressions are likely in the central Piedmont of NC. Winds between 35

and 58+ miles are highly likely to occur each year. Tropical storm winds of between 38 and 74 miles per hour are likely. Hurricane strength winds of between 74 to 100 miles per hour are possible. Tornadoes and subsequent increased wind speed are also a risk as tropical storms pass through.

Landslide

Occurrences – 1950 to present	unknown
Likelihood of occurrence	unlikely
Intensity & impact to Randolph County	negligible
Area most vulnerable	extreme eastern portion of County

Landslides are more common through the more mountainous areas predominately from sliding of clay rich soils. According to the United States Geological Survey. Landslides are typically associated with heavy rains, flooding events, and often with earthquakes.



Note: Susceptibility not indicated where same or lower than incidence. Susceptibility to land sliding was defined as the probable degree of response of [the area] rocks and soils to natural or artificial cutting or loading of slopes, or to anomalously high precipitation. High, moderate, and low susceptibility are delimited by the same percentages used in classifying the incidence of land sliding. Some generalization was necessary at this scale, and several small areas of high incidence and susceptibility were slightly exaggerated.
U.S. Geological Survey, U.S. Department of the Interior, 2003
URL: http://landslides.usgs.gov/html_files/landslides/nationalmap/national.html

According to the US Geological Survey as shown above, Randolph County has a low incidence and susceptibility of landslides throughout most of the county. The area east of Asheboro and south of the town of Liberty is highly susceptible and has a high incidence of landslides.

Sinkhole

Occurrences – 1950 to present	unknown
Likelihood of occurrence	possible
Intensity & impact to Randolph County	negligible
Area vulnerable	isolated areas

Sinkholes occur where the rock below the land surface is limestone, carbonate rock, salt beds, or rocks that can naturally be dissolved by ground water circulating through them *(karst areas or regions)*. As the rock dissolves, spaces and caverns develop underground. Randolph County is in the slate belt and is not prone to sinkholes related to karst areas or regions. However, Randolph County has numerous abandoned mine shafts, mostly from precious metal mining, throughout the county. Gold mining occurred in 18th and 19th centuries in over 34 locations throughout Randolph County.

Subsidence is the sudden (e.g., over two hours) or gradual downward movement of the ground surface (e.g., dropping by a few inches over a number of years.) The greatest potential for subsidence exists over abandoned underground mines, tunnels or shafts, which includes gold (and other precious metal) mines. Tunnels and shafts may extend for hundreds of feet horizontally and vertically underground. If building or structures are located above these mine workings, serious damage can occur.

Reportedly mine subsistence is rare although the potential of increasing subsidence is possible as development extends or spreads to these areas.

Severe Thunderstorms

Occurrences – past ten years	72 recorded
Likelihood of occurrence	highly likely
Intensity & impact to Randolph County	limited
Area vulnerable	countywide

The National Weather Service defines a severe thunderstorm as a storm that produces hail at least three-quarters of an inch in diameter, has winds of 58 miles per hour or higher, or produces a tornado. When a severe thunderstorm WARNING is issued, it is possible that hazardous weather events such as a strong winds, frequent lightning, hail, downbursts, microbursts, a tornado or a flash flood could occur.

A multicell thunderstorm has multiple updrafts forming new cells as each downdraft dissipates the previous cell. This type of storm is more long-lived that an ordinary thunderstorm. Squall lines usually contain several multicell thunderstorms. These storms can produce large hail and damaging wind. Short-lived tornadoes have been known to occur in the leading edge of this type of storm. A supercell has a *persistent* rotating updraft, and is a long-lived storm (over several hours) with a familiar radar reflectivity signature called a “hook echo.” The hook echo signature is a strong indicator of tornado occurrence. Supercell thunderstorms may produce strong destructive tornadoes, large hail and damaging wind.

A downburst is a strong downdraft which includes an outburst of potentially damaging winds on or near the ground. If the diameter of the downburst is less than 2.5 miles, it is called a microburst. Downbursts and straight-line winds associated with thunderstorms can produce winds 100 to 150 miles per hour, enough to flip cars, vans, and semi-trucks. The resulting damage can equal the damage of most tornadoes.

Thunderstorms are common occurrences in Randolph County and all through North Carolina throughout the year. According to the National Climatic Data Center, a total of 72 severe thunderstorms have hit Randolph County in the past 40 years. It is extremely likely that this number is low and severe thunderstorm events have gone unreported. Almost all thunderstorms have strong winds, heavy downpours, and lightning associated with them. A single cell or ordinary thunderstorm *can* produce severe weather, but *most* ordinary storms are not categorized as severe storms and it is unlikely that they are recorded. Generally, damage from severe thunderstorms is isolated, but can be associated with downed trees, lightning strikes, and high wind. Crop damage is highest with hailstorms.

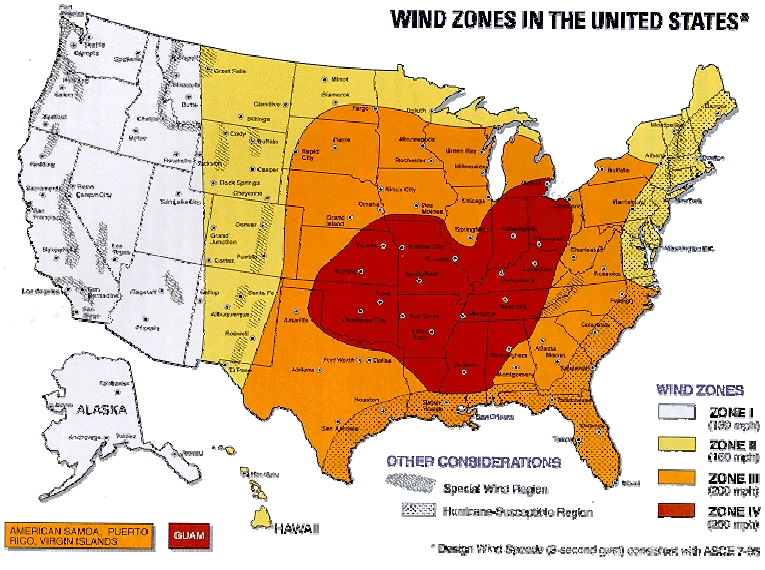


Figure I.2 Wind zones in the United States

Source: Taking Shelter From the Storm, FEMA publication (320) with Texas Tech University, Wind Engineering Research Center

Severe thunderstorms (multicell or supercell), and associated strong winds in excess of 58 mph, downdrafts and microbursts are highly likely to occur within the next year. Randolph County is located in Zone III wind zone which means that winds up to 200mph is possible in this region. However, it is more likely that wind between 38 and 73 miles per hour as in a severe thunderstorm, tropical depression or tropical storm.

According to the National Climate Data Center, since 1950 there has been no deaths attributed to thunderstorm activity and only 2 injuries (severity not reported). Of events from 1990 to present: 98% report tree damage only; 17% trees and power lines down; 11% reported damage to buildings/homes (data as to storm impact is unavailable through this database prior to 1990). In addition to these recorded occurrences, Randolph County experienced a downburst or straight-line wind on February 22, 2003, resulting in over $300,000 in property damage but no injuries or deaths.

Tornado

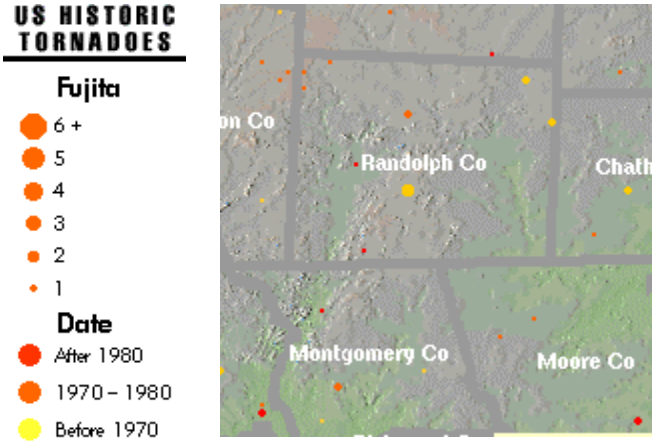
Occurrences – past 50 years	13
Likelihood of occurrence	likely
Intensity & impact to Randolph County	critical
Area vulnerable	countywide

A tornado is a violently rotating column of air extending from a thunderstorm to the ground. Tornadoes may appear nearly transparent until dust and debris are picked up or a cloud forms in the funnel. The average tornado moves SW to NE but they have been known to move in any direction. The average forward speed is 30 mph but may vary from stationary to 70 mph and have rotating winds in excess of 250 mph. Tornadoes can accompany tropical storms and hurricanes as they move onto land.

Tornado potential is highest in the spring when warm air masses collide with cooler air.

Time of occurrence

Tornadoes can occur at any time of the year. They have occurred in every state, but they are most frequent east of the Rocky Mountains during spring and summer months. In the southern states, peak tornado occurrence is March through May. Texas Tech University reports that tornadoes are most likely to occur between 3 and 9 p.m. Tornado occurrences in Randolph County have generally occurred anytime from just before noon to late evening.



F-0 and F-1 tornadoes are considered "weak," F-2 and F-3 are "strong" and F-4 and F-5 are "violent." The National Weather Service accepted the Fujita Scale for use in 1973 and Allen Pearson, then director of the National Severe Storms Forecast Center, added the Pearson Scales for tornado path length and path width, creating the Fujita-Pearson Scale.

According to the National Climate Data Center database Randolph County has experienced 13 tornadoes since 1950; six have occurred since 1980; three have occurred since 1990. Forty-five percent of the tornadoes that occurred in Randolph County over the past 50 years have been F1 tornadoes. The most severe tornado reported was an F3 in 1965 which traveled a length of 28 miles and was 300 yards wide. The average path of the tornadoes is 4.7 miles long with a width of 63 yards wide (equivalent to an F2 on the Fujita scale.) Most tornados that have occurred in Randolph County have been of F1 intensity with winds between 73 and 112 mph. Though it is possible to map the path of previous tornadoes, those locations are not indicators of greater vulnerability within the county.

Since 1950 there is one recorded death and six injuries (severity not recorded). No deaths or injuries have been reported since 1977.

Table: Severity and intensity of recorded tornado events in Randolph County

Fujita scale	Severity	Wind Speed	Damage	Tornados in Randolph County 1950-2003
F0	Gale tornado	40-72 mph	Some damage to chimneys; breaks branches off trees; pushes over shallow-rooted trees; damages signboards.	
F1	Moderate	73-112 mph	Peels surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off the roads; attached garages may be destroyed.	
F2	Significant	113-157 mph	Considerable damage. Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light object missiles generated.	
F3	Severe	158-206 mph	Roof and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted.	
F4	Devastating	207-260 mph	Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.	
F5	Incredible.	261-318 mph	Strong frame houses lifted off foundations and carried considerable distances to disintegrate; automobile sized missiles in excess of 100 meters; trees debarked; steel-reinforced concrete structures badly damaged.	
F6	Inconceivable	319-379 mph	Very unlikely. Probably not recognizable among damage of F-4 and F-5 winds that would surround the F-6 winds.	

Tornadoes are capable of destroying homes and vehicles, causing injuries and fatalities. After a tornado event specific hazards may develop. The structural integrity of buildings may be compromised, there may be damage to utilities including exposed live wires, sparks, or broken and frayed wires. Sewage line and waterline damage is also possible. At a minimum, tornado winds of an FO can be equivalent to a severe thunderstorm or severe tropical storm. F1 tornadoes have hurricane strength winds at 75 mph and can do considerable damage. [3]

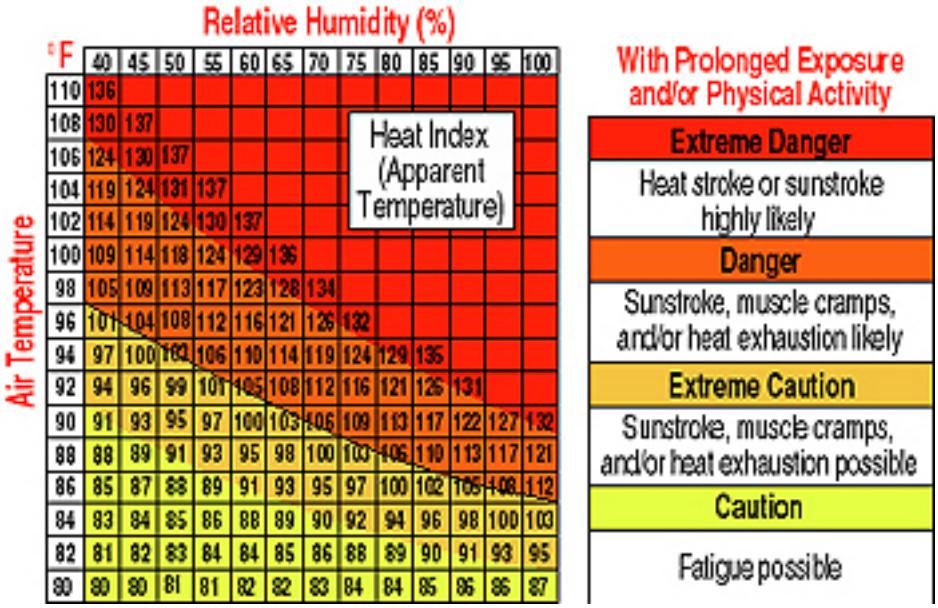
[3] *Sources: the National Weather Service, Federal Emergency Management Administration, American Red Cross, and Texas Tech University*

Heatwave

Occurrences – past 10 years	unknown
Likelihood of occurrence	highly likely
Intensity & impact to Randolph County	limited
Area vulnerable	countywide

The National Climatic Data Center lists one occasion of excessive heat in Randolph County, although statistics on heat have only been compiled for the past eight years or so. Forecasters combine the heat and humidity numbers to create the heat index -- a gauge of how the body perceives the heat. An excessive heat advisory is issued when the heat index determines conditions feel like it is 105 degrees Fahrenheit or higher.

HEAT INDEX CHART 1
(Using Temperature and Relative Humidity)



Strong winds, particularly with very hot, dry air, can exacerbate heat hazards. In addition, the stagnant atmospheric conditions of a heat wave traps pollutants in urban areas and adds the stress of severe pollution to the already dangerous exposure to excessive heat.

Areas most likely affected in a heat wave are urban areas. Extreme heat conditions typically are the most severe for vulnerable populations, such as impoverished populations (without access to air conditioning, swimming pools or other cooling devices) and elderly populations. Those on fixed incomes, both those without air conditioning, or those who because of economic constraints, turned off their units, may be in danger from heat exhaustion. Property damage is not likely, but crop damage can be severe if the heatwave is associated with a severe or extreme drought.

From July 22-25, 1998, the heat index values for the county stayed at 110 degrees. It is not unusual for the temperature to be in the 90's during the summer, and in some instances the heat index is in the 100's.

Tsunami

Occurrences - past 50 years	none
Likelihood of occurrence	unlikely
Intensity & impact to Randolph County	negligible
Area vulnerable	n/a

Randolph County is approximately 150 miles away from the Atlantic Ocean. The risk of a tsunami causing a hazard in Randolph County is negligible.

Wildfires

Occurrences – 5 years from 1998-2002	317
Likelihood of occurrence	highly likely
Intensity & impact to Randolph County	negligible to limited
Area vulnerable	countywide

There are approximately 311,657 total acres of forested land in Randolph County. Randolph County has two fire seasons, from March to May and from October to January. The major cause of wildfires in Randolph County is debris burning.

A total of 317 wildfires have occurred in the five-year period from 1997 to 2001, with 817 acres burned, on average 2.4 acres per fire. Over the five year period of record, debris burning is the major cause of fire (59%); 10% of wildfires caused by smoking; 10% of wildfires caused by children; 6% of wildfires caused by incendiary use. 2001 had greatest number of fire events (157); 1999 with 88; other years 40-43 fires.

From period of 1998 to 2001:

- The local fire department is the first responder in 93% of all wild fires in Randolph County
- 38 structures (outbuildings) were damaged or destroyed at a cost of $105,000.
- 1 home reported damaged ($550)
- 15 vehicles damaged at a cost of $18,850

Winterstorm – Ice Event

Occurrences – 1990 to 2002	10
Likelihood of occurrence	likely
Intensity & impact to Randolph County	critical
Area vulnerable	countywide

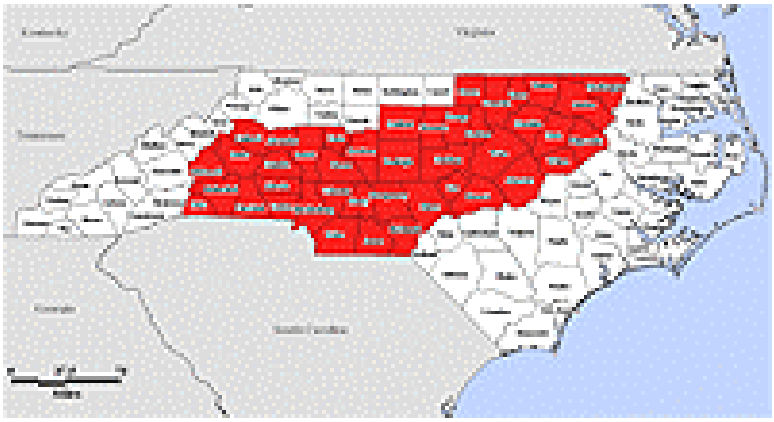
Ice storms are also typical for the piedmont region and are much more likely to cause property damage, power outages, travel problems, and injuries than snowstorms. The geographical orientation of the mountains and piedmont contribute to a regular occurrence of freezing precipitation events (e.g., ice pellets and freezing rain) in the piedmont region of NC. Such ice events (up to and including ice storms) are often the

result of cold air damming. Cold air damming is a shallow, surface-based layer of relatively cold, stably-stratified air entrenched against the eastern slopes of the Appalachian Mountains. With warmer air above, falling precipitation in the form of snow melts, then becomes either supercooled (liquid below the melting point of water) or re-freezes. In the former case, supercooled droplets can freeze on impact (freezing rain), while in the latter case, the re-frozen water particles are ice pellets (or sleet). The figure below shows Randolph County is located within the area of the Southeastern US that is most vulnerable to cold air damming events.

Figure: Cold air damming region

Precipitation normally begins as snow or sleet changing to freezing rain. Highest reported accumulation of ice was 1" to 2" in 1994. Ice accumulation ranges from ¼" to 1" in most reported ice storms. Ice accumulation of greater than ¼" is likely to begin to cause damage to trees. Tree and power line damage, motor vehicle accidents, and large-scale power outages were reported in most storms.

Federally declared disaster area
The ice storm of Dec 4-6, 2002

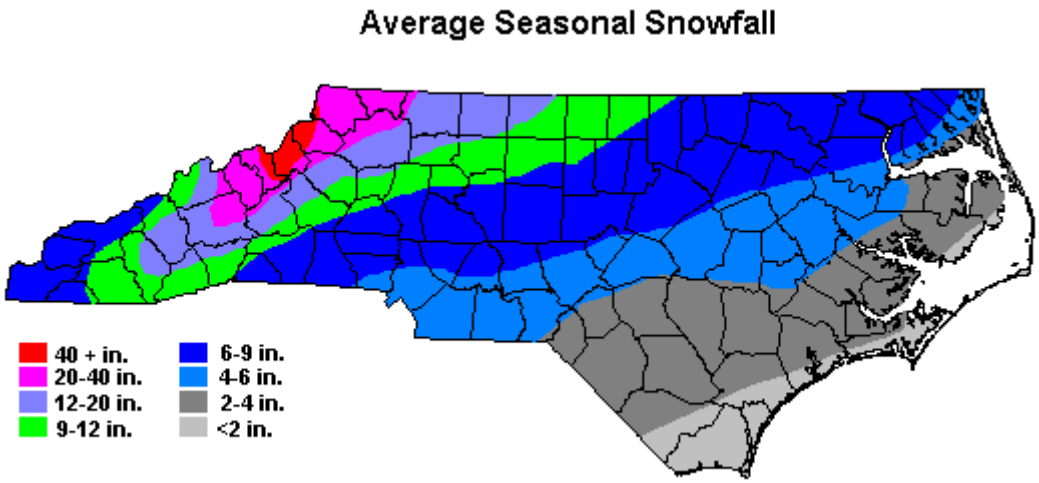


Source: FEMA, December, 2002.

Winterstorm: Snow Event

Occurrences – 1990-present	13
Likelihood of occurrence	highly likely
Intensity & impact to Randolph County	negligible
Area vulnerable	countywide

Snow accumulation during one event may be anywhere from 1 to 2 inches to as much as 12 inches as reported in January of 2000. The average seasonal snowfall amount for Randolph County is between six to nine inches.



Disruption of services, especially schools, is likely but with no major damage. Winter of 2002-2003 saw as much as five winter storms, three of which were snow events only with mainly service disruption, but little actual damage. Two to three snow events are likely to occur each year with accumulation difficult to predict as snow accumulation may range from light dusting to heavy snowfall.

Summary of Randolph County Hazard Events 1950-present

Randolph County	***Historical Recorded Occurrences***			***Impact***
	1950-present	***1979 - present***	***1990 - present***	
Dam/levee failure	*n/a*	*n/a*	*1*	*One recorded failure of a low hazard (class a) river dam that failed during a flood. It was not discovered until floodwaters receded and dam was exposed. Actual failure caused no damage – all damage was flood related. There are 23 high hazard dams in Randolph County with no recorded failures in the last ten years.*
Drought	*8*	*4*	*2*	*Randolph County, in NC Climate Division 4 has experienced at least eight periods (from six months to five years in length) where the monthly value on the Palmer Drought Index indicated the severity of a dry spell exceeded -3 for an estimated period of > 6 months.* *[Palmer drought index ranges from -6 to +6 with negative values denoting dry spells. Values of -1 to -2 indicate mild drought; -2 to -3 indicate moderate drought; -3 to -4 indicate sever drought; > -4 indicates extreme drought.]*
Earthquakes	*0*	*0*	*0*	*None of significance reported. Threat low. Approximately two-thirds of North Carolina is subject to earthquakes from activity on the Eastern Tennessee Seismic Zone and the Charleston fault in South Carolina with the western and southeast region most vulnerable. These faults have generated earthquakes measuring than 4.6 and 7.3 respectively on the Richter scale during the last two hundred years.*
Floods	*n/a*	*n/a*	*10*	*Road closures reported in majority of flood events; crop damage in 1997 due to system ahead of tropical storm. Hazard threat is generally higher for urban or storm water flooding (flashflooding) than for river or stream flooding. Incidences of storm water flooding associated with severe thunderstorms or localized heavy rains are on the increase, particularly in the municipalities.*
Cyclonic events	*8*	*5*	*3*	*Wind speeds between 38 and 100 mph probable. As hurricanes have struck the NC or SC coast, they typically downgrade quickly so that by the time they reach our area, the storm is classified as either a tropical storm or a tropical depression. Tropical storms and tropical depressions are likely in the central Piedmont of NC. Tornadoes are also a risk as tropical storms pass through.*
Landslides	*0*	*0*	*0*	*No reported occurrences in the last fifty years*
River erosion	*-*	*-*	*-*	*Not viewed as significant concern for Randolph County and municipalities in terms of natural hazard threat*

Randolph County	***Historical Recorded Occurrences***			***Impact***
	1950-present	***1979 - present***	***1990 - present***	
				of natural hazard threat
Severe thunderstorms	*72*	*65*	*45*	*Thunderstorms are common occurrences in Randolph County. Severe thunderstorms (multicell or supercell), and associated strong winds in excess of 58 mph, downdrafts and microbursts are highly likely to occur within the next year. According to the National Climate Data Center, since 1950 there has been no deaths attributed to thunderstorm activity and only 2 injuries (severity not reported.) Of events from 1990 to present: 98% report tree damage only; 17% trees and power lines down; 11% reported damage to buildings/homes. (Data as to storm impact is unavailable through the NCDC database prior to 1990.)*
Sinkholes	*Unknown*	*Unknown*	*Non recorded*	*Randolph County is in the slate belt. Only 3% of bedrock is comprised of limestone or sedimentary rock prone to water erosion. There are currently two recorded permitted mines in Randolph County (quarries) which would not pose a sinkhole threat. However, there are numerous historical underground mines with extensive shafts, which may pose a threat to ground stability if development occurs directly above them.*
Temperature extreme – cold	*n/a*	*n/a*	*1*	*No impacts recorded*
Temperature extreme – heat	*n/a*	*n/a*	*1*	*Extreme heat conditions typically are the most severe for vulnerable populations within the county. Urban areas, impoverished populations (without access to air conditioning, swimming pools or other cooling devices) and elderly populations are most likely at risk. Property damage is not likely, but crop damage can be severe in some cases.*
Tornadoes	*13*	*6*	*3*	*1 F3; 4 F2; 6 F1; 2 F0; total of one death, six injuries. No deaths or injuries reported since 1977.* *According to the National Climate Data Center database Randolph County has experienced 13 tornadoes since 1950; 6 have occurred since 1980; three have occurred since 1990. Forty five percent of the tornadoes that occurred in Randolph County over the past 50 years have been F1 tornadoes. The most severe tornado reported was an F3 in 1965 which traveled a length of 28 miles and was 300 yards wide. The majority of tornadoes have been an F1 or F0. At a minimum, tornado winds of an FO can be equivalent to a severe thunderstorm or severe tropical storm. F1 tornadoes have hurricane strength winds at 75 mph. and can do considerable damage.*

Randolph County	***Historical Recorded Occurrences***			***Impact***
	1950-present	***1979 - present***	***1990 - present***	
				Tornadoes are capable of destroying homes and vehicles, causing injuries and fatalities. After a tornado event specific hazards may develop. The structural integrity of buildings may be compromised, there may be damage to utilities including exposed live wires, sparks or broken and frayed wires. Sewage line and waterline damage is also possible.
Tsunamis	*0*	*0*	*0*	*Randolph County is approximately 150 miles away from the Atlantic Ocean. The risk of a tsunami causing a hazard in Randolph County is negligible.*
Wildfires	*n/a*	*n/a*	*371**	** Number represents total wildfire in **5 year** period from 1997 to 2001 with 817 acres burned, on average 2.4 acres per fire. Over the fire year period of record, debris burning is the major cause of fire (59%); 10% of wildfires caused by smoking; 10% of wildfires caused by children; 6% of wildfires caused by incendiary use. 2001 had greatest number of fire events (157); 1999 with 88; other years 40-43 fires.* *From period of 1998 to 2001:* *The local fire department is the first responder in 93% of all wild fires in Randolph County* *38 structures (outbuildings) were damaged or destroyed at a cost of 105,000.* *1 home reported damaged ($550)* *15 vehicles damaged at a cost of 18,850*
Winter storms (Ice events)	*n/a*	*n/a*	*10*	*Tree and power line damage, motor vehicle accidents, and large scale power outages reported.*
Winter storms (snow events)	*n/a*	*n/a*	*13*	*Disruption of services, no major damage or impact reported*

	Historical Recorded Occurrences 1990-present						
	Archdale	***Asheboro***	***Franklinville***	***Liberty***	***Ramseur***	***Randleman***	***Trinity***
Dam/levee failure	*-*	*-*	*-*	*-*	*-*	*-*	*-*
Drought	*2*	*2*	*2*	*2*	*2*	*2*	*2*
Earthquakes	*0*	*0*	*0*	*0*	*0*	*0*	*0*
Floods	*0*	*5*	*0*	*0*	*0*	*5*	*0*
Hail	*17*	*22*	*18*	*18*	*18*	*18*	*0*
Hurricanes/tropical storms	*3*	*3*	*3*	*3*	*3*	*3*	*3*
Landslides	*-*	*-*	*-*	*-*	*-*	*-*	*-*
River erosion	*-*	*-*	*-*	*-*	*-*	*-*	*-*
Severe thunderstorms	*42*	*50*	*43*	*43*	*43*	*48*	*41*
Sinkholes	*mines*	*mines*	*mines*	*-*	*Mines*	*mines*	*mines*
Temperature extreme – cold	*1*	*1*	*1*	*1*	*1*	*1*	*1*
Temperature extreme – heat	*1+*	*1+*	*1+*	*1+*	*1+*	*1+*	*1+*
Tornadoes	*1*	*1*	*0*	*0*	*0*	*1*	*2*
Tsunamis	*-*	*-*	*-*	*-*	*-*	*-*	*-*
Wildfires	*?*	*?*	*?*	*?*	*?*	*?*	*?*
Winter storms (Ice events)	*10*	*10*	*10*	*10*	*10*	*10*	*10*
Winter storms (snow events)	*13*	*13*	*13*	*13*	*13*	*13*	*13*

Randolph County Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe, 2=moderate, 1=mild, 0=no impact	Potential Impact **4** = Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Tornadoes**	3	3	3	9
2	**Dam/Levee Failure**	2	3	4	9
3	**Winter Storm - ice event**	3	3	3	9
4	**Flooding**	4	2	2	8
5	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	2	8
6	**Severe Thunderstorms**	4	2	2	7
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Wildfire**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Drought**	3	1	1	5
12	**Severe Heat**	3	1	1	5
13	**Landslides/Sink Holes**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunamis**	0	0	0	0

Archdale Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe, 2=moderate, 1=mild, 0=no impact	Potential Impact **4 =C**atastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Flooding**	4	3	3	10
2	**Dam/Levee Failure**	2	3	4	9
3	**Winter Storm - ice event**	3	3	3	9
4	**Tornado**	3	3	2	8
5	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	2	8
6	**Severe Thunderstorms**	4	2	2	7
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Wildfire**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Drought**	3	1	1	5
12	**Severe Heat**	3	1	1	5
13	**Landslides/Sink Holes**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunamis**	0	0	0	0

Asheboro Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe, 2=moderate, 1=mild, 0=no impact	Potential Impact **4** = Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Flooding**	4	3	3	10
2	**Winter Storm - ice event**	2	3	4	9
3	**Severe Thunderstorm**	3	3	3	9
4	**Tornado**	3	3	2	8
5	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	2	8
6	**Dam/Levee Failure**	4	2	2	7
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Wildfire**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Drought**	3	1	1	5
12	**Severe Heat**	3	1	1	5
13	**Landslides/Sink Holes**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunamis**	0	0	0	0

Franklinville Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe, 2=moderate, 1=mild, 0=no impact	Potential Impact **4** = Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Flooding**	4	3	3	10
2	**Dam/Levee Failure**	2	3	4	9
3	**Winter Storm - ice event**	3	3	3	9
4	**Severe Thunderstorm**	3	3	2	8
5	**Cyclonic event: Tropical and Extra tropical (nor'easter) Storms**	3	3	2	8
6	**Tornado**	2	3	3	8
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Wildfire**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Drought**	3	1	1	5
12	**Severe Heat**	3	1	1	5
13	**Landslides/Sink Holes**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunamis**	0	0	0	0

Liberty Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe, **2**=moderate, **1**=mild, **0**=no impact	Potential Impact **4** = Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Winter Storm - ice event**	4	3	3	10
2	**Severe Thunderstorm**	2	3	4	9
3	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	3	9
4	**Tornado**	3	3	2	8
5	**Drought**	3	3	2	8
6	**Wildfire**	2	3	3	8
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Severe Heat**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Sinkhole/landslide**	3	1	1	5
12	**Flooding**	3	1	1	5
13	**Dam/Levee Failure**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunami**	-	-	-	-

Ramseur Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe **2**=moderate **1**=mild **0**=no impact	Potential Impact **4** = Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Flooding**	4	3	3	10
2	**Dam/Levee Failure**	2	3	4	9
3	**Winter Storm - ice event**	3	3	3	9
4	**Severe Thunderstorm**	3	3	2	8
5	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	2	8
6	**Tornado**	2	3	3	8
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Wildfire**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Drought**	3	1	1	5
12	**Severe Heat**	3	1	1	5
13	**Landslides/Sink Holes**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunamis**	0	0	0	0

Randleman Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe **2**=moderate **1**=mild **0**=no impact	Potential Impact **4** = Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Flooding**	4	3	3	10
2	**Dam/Levee Failure**	2	3	4	9
3	**Winter Storm - ice event**	3	3	3	9
4	**Severe Thunderstorm**	3	3	2	8
5	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	2	8
6	**Tornado**	2	3	3	8
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Wildfire**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Drought**	3	1	1	5
12	**Severe Heat**	3	1	1	5
13	**Landslides/Sink Holes**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunamis**	0	0	0	0

Seagrove Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe, 2=moderate, 1=mild, 0=no impact	Potential Impact **4 =** Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Winter Storm - ice event**	4	3	3	10
2	**Severe Thunderstorm**	2	3	4	9
3	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	3	9
4	**Tornado**	3	3	2	8
5	**Drought**	3	3	2	8
6	**Wildfire**	2	3	3	8
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Severe Heat**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Sinkhole/landslide**	3	1	1	5
12	**Flooding**	3	1	1	5
13	**Dam/Levee Failure**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunami**	-	-	-	-

Staley Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe **2**=moderate **1**=mild **0**=no impact	Potential Impact **4** = Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Winter Storm - ice event**	4	3	3	10
2	**Severe Thunderstorm**	2	3	4	9
3	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	3	9
4	**Tornado**	3	3	2	8
5	**Drought**	3	3	2	8
6	**Wildfire**	2	3	3	8
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Severe Heat**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Sinkhole/landslide**	3	1	1	5
12	**Flooding**	3	1	1	5
13	**Dam/Levee Failure**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunami**	-	-	-	-

Trinity Hazard Ranking

Rank	Type Hazard & Associated Elements	Likelihood of Occurrence **4**= Highly Likely **3** = Likely **2**=Possible **1** = Unlikely **0** = no chance of occurring	Intensity rating: **3**=severe **2**=moderate **1**=mild **0**=no impact	Potential Impact **4 =** Catastrophic **3** = Critical **2** = Limited **1** = negligible	Total Score
1	**Flooding**	4	3	3	10
2	**Dam/Levee Failure**	2	3	4	9
3	**Winter Storm - ice event**	3	3	3	9
4	**Severe Thunderstorm**	3	3	2	8
5	**Cyclonic event: Tropical and Extratropical (nor'easter) Storms**	3	3	2	8
6	**Tornado**	2	3	3	8
7	**Cyclonic Events: Hurricanes**	2	3	2	7
8	**Wildfire**	4	1	2	7
9	**Cyclonic event: Tropical Depressions**	4	1	1	6
10	**Winter Storm - snow event**	4	1	1	6
11	**Drought**	3	1	1	5
12	**Severe Heat**	3	1	1	5
13	**Landslides/Sink Holes**	2	1	1	4
14	**Earthquake**	1	1	1	3
15	**Tsunamis**	0	0	0	0

APPENDIX B
ASSESSMENT OF VULNERABILITY FOR RANDOLPH COUNTY AND MUNICIPAL JURISIDICTIONS

Risk and Vulnerability Methodology

Hazard risk areas are identified geographically based on past hazardous incident history, geology, or identification by U.S. or North Carolina government agencies as those areas most likely to be affected by a given hazard. Persons and structures located within the hazard risk areas are considered to be at risk from hazards but not necessarily vulnerable to hazard impacts. The vulnerability of the people and resources within the hazard risk area is related to individual exposure to hazard events impacts and availability of resources to recover from a hazard event. Vulnerability is defined as the level of exposure combined with lack of resources, which would result in a high impact/loss on the population or area as a result of the hazard event.

High hazard risk areas are those areas with a specific hazard associated with the geographic area such as areas with high landslide incidence, presence of floodplains, areas with abandoned gold mines, especially those with horizontal and vertical shafts which may lead to ground subsidence, or those areas which are exposed to hazardous structures or facilities such as nuclear facilities, high hazard dams, or extremely hazardous substance facilities. These areas were mapped to each census block group area in order to analyze populations exposed, to assign level of vulnerability, and to determine value of exposed structures or facilities.

The vulnerability of the community was assessed through the analysis of census tract data at the block group level. Vulnerable populations were identified as those persons who are do not speak English or those who do not speak English well, who do not have accesses to vehicles, households without a telephone, and those below the poverty level. Persons with “self care” or “go out of home” disabilities were also mapped. However, the relatively low number of disabled and their scattered geographic locations did not present a pattern or concentration in any geographic location.

The vulnerability of all critical facilities was also assessed through this plan. Randolph County has defined *Critical Facilities* as “Public or private buildings services and utilities which must function to protect the health safety and viability of the community. Those facilities that provide essential services required to maintain or restart the overall function of the community.”

When these high-risk areas intersect with critical facilities or highly vulnerable populations, the likely impact from a natural or manmade hazardous event is heightened. These areas have been identified at the census block group level as priority areas for focused consideration in the development of hazard mitigation strategies that will lessen the impact of a hazard event on the population at risk.

Randolph County

Randolph County is located in central North Carolina and covers 793 square miles, of which 250 square miles is located in watersheds and watershed critical areas. Of the 504,851 acres of land in the county, 311,657 acres are forestland. Of these, 300,407 forestland acres are privately owned property. The Uwharrie National Forest covers about 4,140 acres of land in

southwestern Randolph County. Current population of Randolph County as determined by the 2000 Census is 130,454, which is a 22.4% increase over the past ten years.

There are nine individual municipalities within Randolph County: Archdale, Asheboro, Franklinville, Liberty, Ramseur, Randleman, Seagrove, Staley, and Trinity. All of the following municipal water supplies are located within Randolph County regulatory jurisdiction, Lake Reese, Lake Lucas, Randleman Lake, Sandy Creek, Polecat Creek, Big Alamance Creek, Rocky River, Bear Creek and Badin Lake.

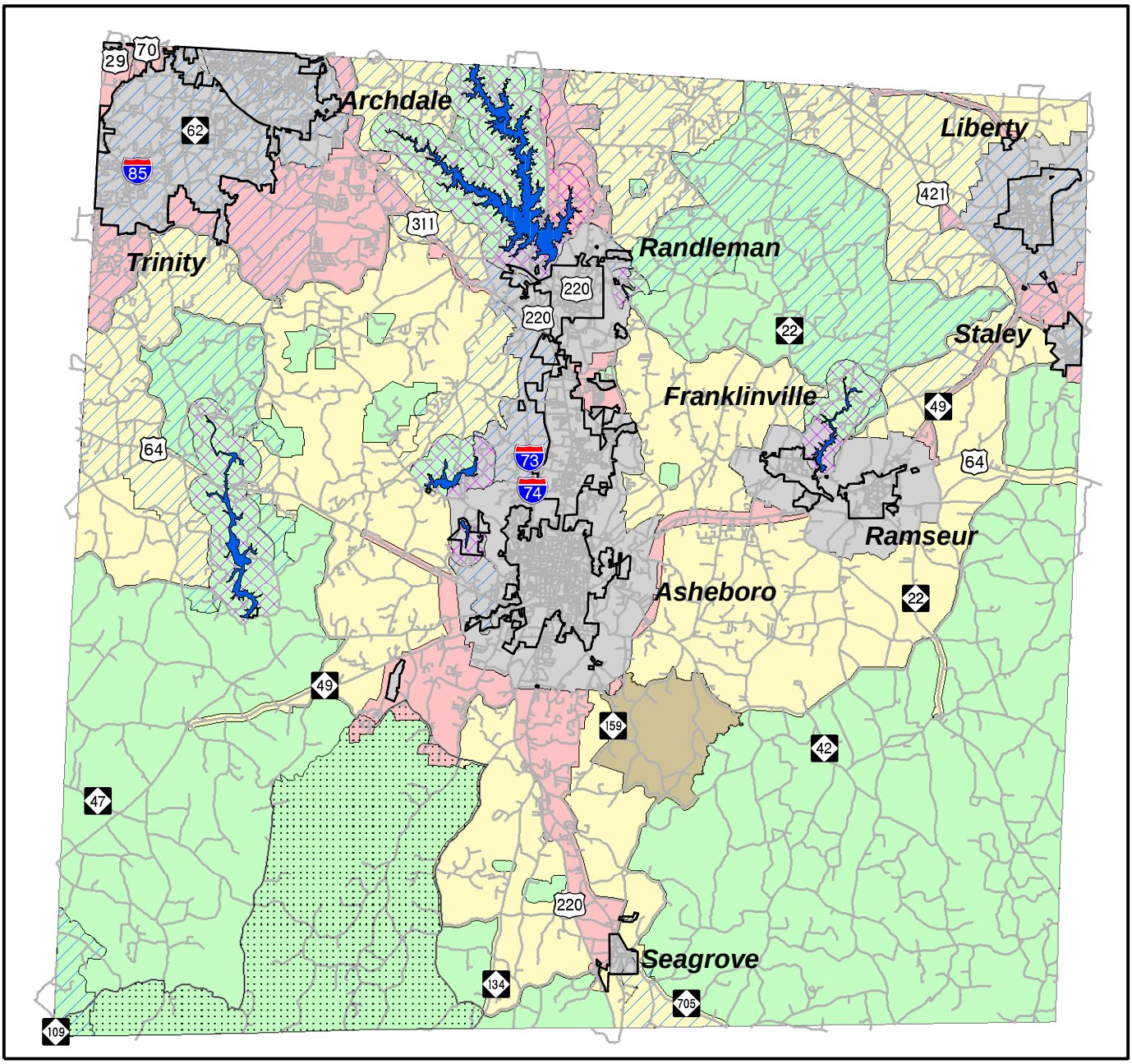
Growth Trends

	Population 2000	Population 1990	Population Change	Percent increase
Randolph County	**130,454**	**106,546**	**23,908**	**22.4%**
Archdale	9,014	6,975	2,039	29.2%
Asheboro	21,672	16,362	5,310	32.5%
Franklinville	1,258	666	592	88.9%
Liberty	2,661	2,047	614	30.0%
Ramseur	1,588	1,186	402	33.9%
Randleman	3,557	2,612	945	36.2%
Seagrove	246	244	2	0.8%
Staley	347	204	143	70.1%
Trinity	6,690	6,470	220	3.4

The type of residential growth occurring in Randolph County is described as rural sprawl and has been primarily medium to large lot single-family residential land subdivisions. Most of this development occurs outside of areas served by public infrastructure. Almost all public costs of residential development are covered by property tax revenue.

Randolph County's has developed a growth management plan indicative of its desire for strategic growth management and development. Randolph County has identified growth management areas within the county.

Randolph County Growth Management Areas



0 1 2 4 6 8 Miles

Legend

- Reservoirs
- Uwharrie National Forest
- Main roads

Watersheds

Type

- WQCA
- Protected Area
- Municipal Growth Area
- Primary Growth Area
- Secondary Growth Area
- Rural Growth Area
- Zoo Environmental Area

The Primary Growth Areas are located adjacent to municipal limits and extends along the major transportation corridors which transverse the county. These areas will be higher density areas likely to have access to infrastructure such as water and sewer. This area is zoned for mixed use that will include residential commercial and industrial development.

Secondary Growth Areas are medium density areas without access to public infrastructure and predominantly residential. As a matter of policy, Randolph County planning directs major subdivision developments to areas with adequate infrastructure and therefore discourages major subdivision development in the secondary growth areas.

The Rural Growth Areas are largely woodland, forest, and large undeveloped tracts of land predominantly agricultural and rural residential. These areas are part of the county's open space system.

Municipal areas are located within city limits or the extraterritorial regulatory jurisdiction of the cities. Urban density is expected with mixed land uses. Infrastructure is provided and density encouraged which may alleviate development pressures in areas without water and sewer.
(Source: Randolph County Growth Management Plan 2002)

Randolph County recognizes that all growth management decisions are part of a larger interconnecting framework of building sustainable and quality growth within the county. The Growth management plans municipal growth areas are designated as such because of the existing development. The plan does not support or detract from hazard mitigation planning, but instead documents where growth has occurred and will likely occur in the future. The growth management plan is designed to steer high-density development to already urbanized areas while giving some flexibility to county boards and agencies to enable them to adapt to rural needs. Through its generalized description of growth areas, it can aid *in steering development to low hazard areas* and in preserving the rural heritage of the county.

For the hazard risk areas within municipal growth areas, mitigation strategies addressing these concerns are included in this plan. The Primary Growth area within the northwest section of the county also has a number of hazards associated with its geography. However, flood prevention ordinances and county policies do not allow for development in floodplains.

The Growth Management Zone map serves as the only current land use-planning map for Randolph County.

Transportation projects

Current transportation projects will likely have a significant impact on development in Randolph County. The future I-73 corridor from Asheboro to I-85 Greensboro, I-73/74 south of NC 134 to North of SR 1462 in Asheboro, will be updated to interstate standards. In addition, a new rest area will be constructed on I-73/I-74 corridor south of Asheboro.

NCDOT is proposing to improve the US 64 corridor in the area of Asheboro, Randolph County. This project will create the US 64 southern bypass of the City of Asheboro with a connector to the North Carolina Zoological Park. The bypass begins between Stutts Road and Phillips Country Trail west of Asheboro and ends near Trogden Hill Road east of Asheboro. As part of this action, the NCDOT will improve access to the North Carolina Zoological Park (NC Zoo). The project is currently in the environmental planning phase.

The Asheboro bypass would be a four-lane, controlled-access (no driveways) highway about 13-14 miles long with a grass median strip. The new road to the NC Zoo (the NC Zoo Connector) would be a two-lane controlled-access highway with design characteristics similar to the Blue Ridge Parkway. Total right-of-way width along the new bypass would average about 300 feet, with additional right of way needed at interchange locations to account for the ramps. Interchanges are being considered at both ends of the project on US 64, and at NC 49, I-73/74 (US 220 Bypass), the new NC Zoo Connector, NC 159, and NC 42.

US 64 east of I-85 business in Lexington to US 220 in Asheboro will be widened to four-lane traffic. NC 49 and SR1174 west of Farmer to the proposed Asheboro southern bypass will also be widened to a four lane divided highway. In addition, safety improvements and upgrades will occur at I-85 from Davidson County to I-85 in Guilford County with a bridge replacement at I-74 at SR 1627.[1]

Major physical features

Randolph County has extensive watershed and watershed critical areas located throughout the northern half of the County. The Uwharrie National Forest is located in the southwest quadrant. Eight of the nine municipal jurisdictions are located in the northern half of the county with the largest municipality, Asheboro, located in the center of the County. The towns of Liberty, Staley, Franklinville, Ramseur and portions of Randleman are located within the northeastern quadrant of the county. Archdale and Trinity, as well as portions of Randleman are located in the northwest quadrant. Seagrove is located in the southeastern quadrant which is otherwise primarily a rural growth area. To the southwest is the Uwharrie National Forest, and largely rural growth areas. Flood plains run throughout the entire county with varying degrees of development found within these areas. Growth and development trends tend to run along the major highways and road networks within the County.

Critical Facilities

Randolph County has defined *Critical Facilities* as "public or private buildings services and utilities which must function to protect the health safety and viability of the community. Those facilities that provide essential services required to maintain or restart the overall function of the community."

Map 1: Critical Facilities:
Fire stations, rescue facilities, police stations, County buildings – administration, Municipal complexes – administration, hospitals, and emergency shelters

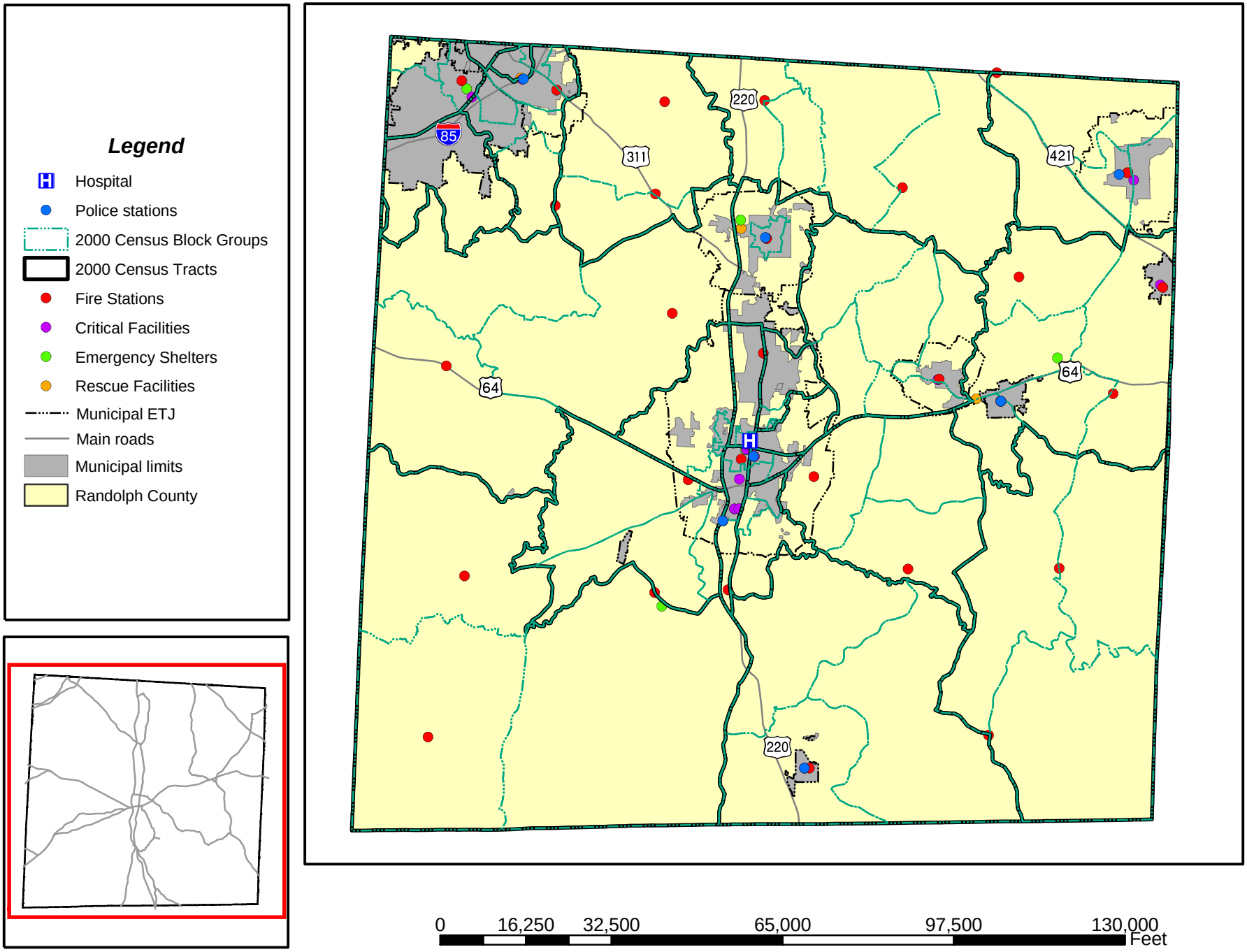
Map 2: Critical Facilities: Utilities
Water treatment plants, sewer treatment plants, sewer lift stations, water towers, reservoirs, power plants, power substations

Map 3: Critical Facilities: Communications
Cell towers, telephone substations, 911 Centers, incident command centers

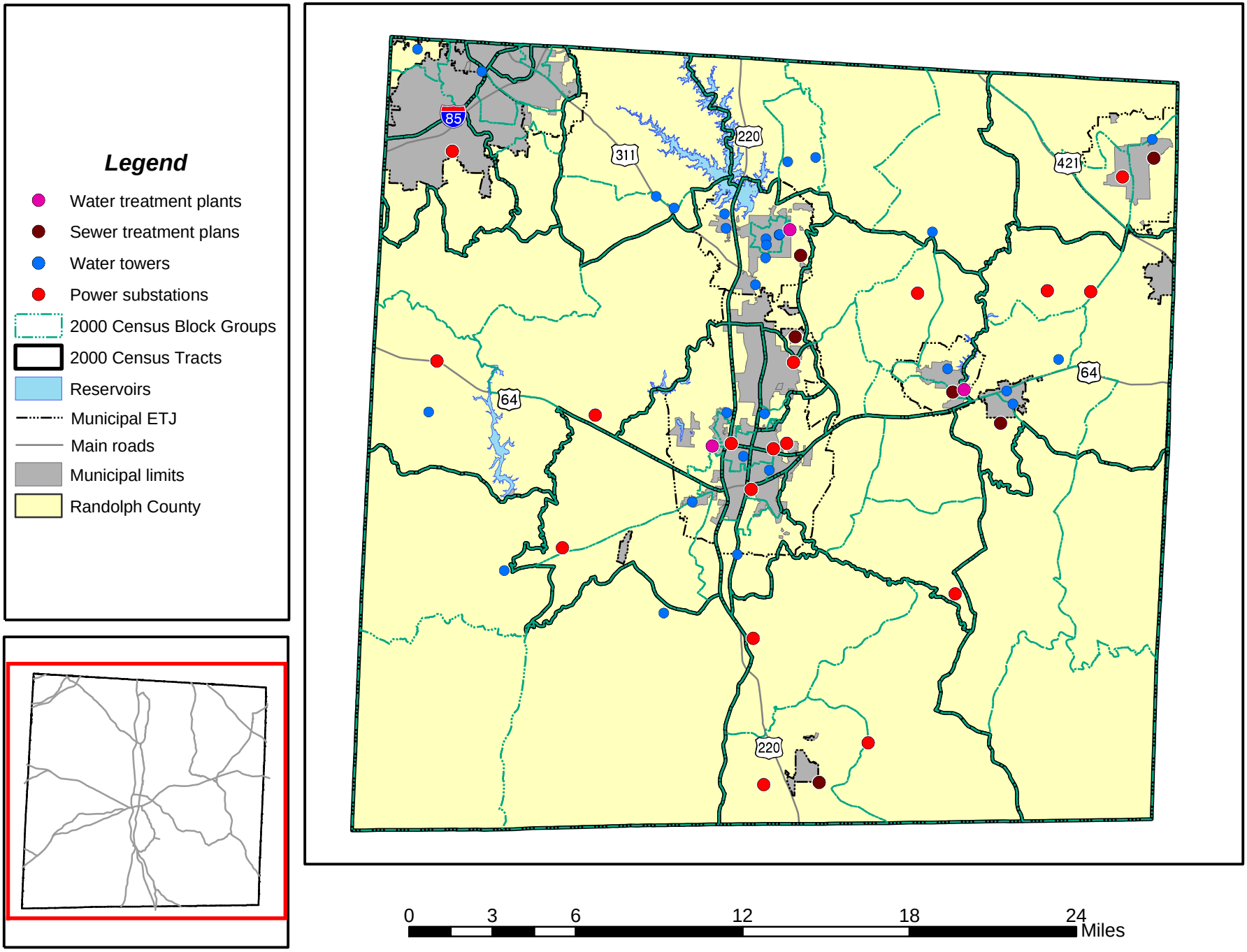
Map 4: Critical Facilities: Major Transportation Arteries
Railroads, major bridges, major thoroughfares, highways

[1] *NC DOT transportation improvement projects*

Randolph County Hazard Mitigation Plan: Critical Facilities Map



Randolph County Hazard Mitigation Plan: Utilities Map



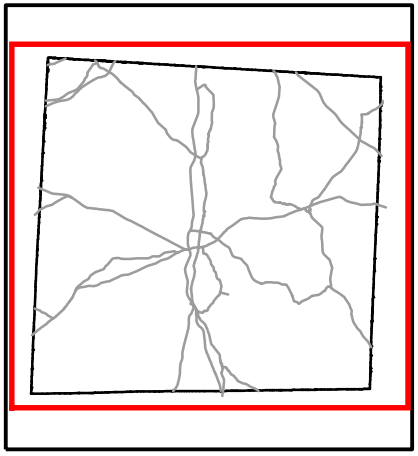
Randolph County Hazard Mitigation Plan: Communications Map

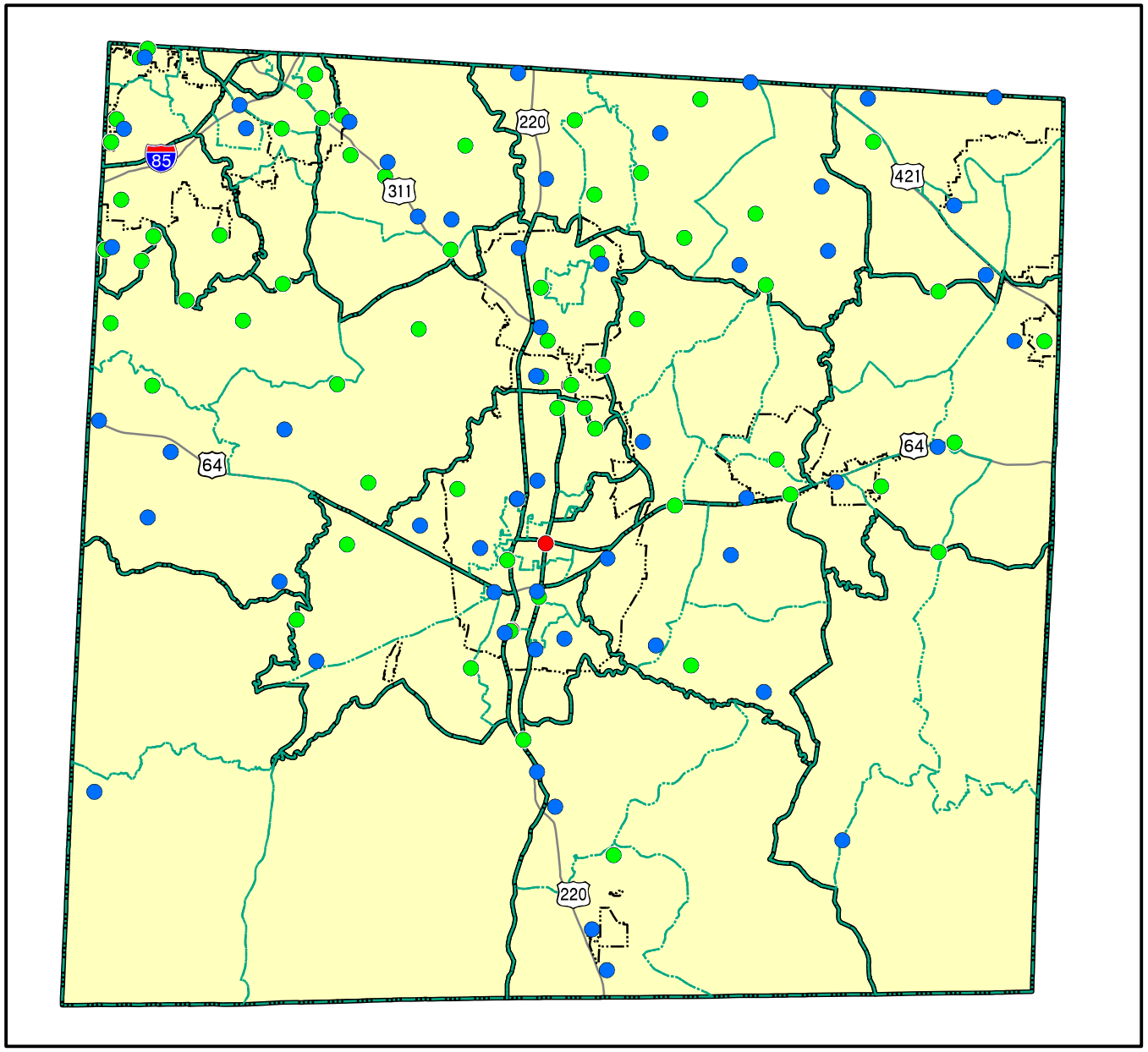
Legend

Towers

- Cellular tower
- Telephone substations
- 911 Centers

- 2000 Census Block Groups
- 2000 Census Tracts
- Municipal ETJ
- Main roads





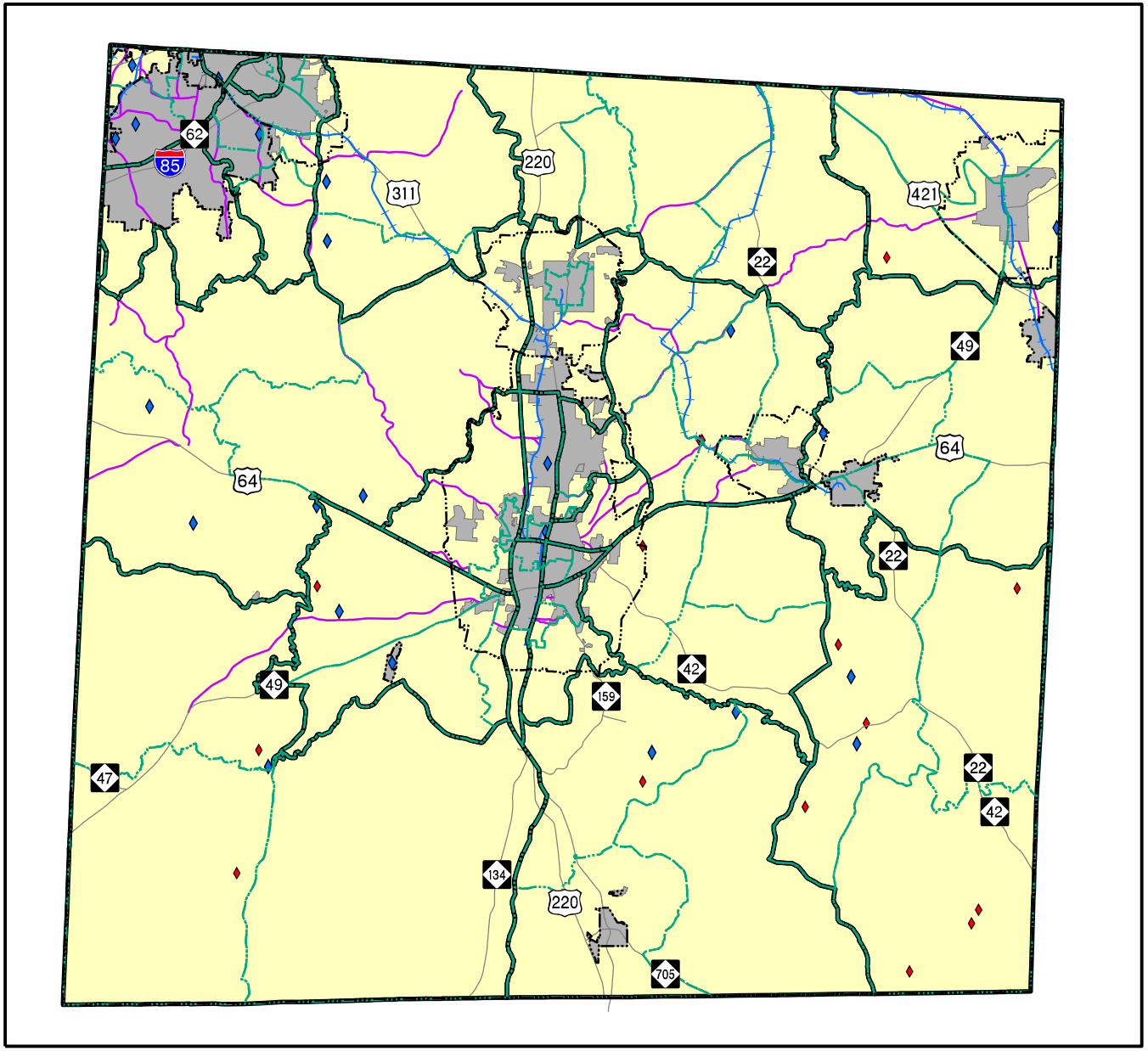
0 3 6 12 18 24 Miles

N

Randolph County Hazard Mitigation Plan: Transportation Map

Legend

- Municipal ETJ
- 2000 Census Block Groups
- 2000 Census Tracts
- Rail lines
- Airports
- Major highways
- FHWA Fund Roads
- Roads and bridges that flood
- Municipal limits



0 3 6 12 18 24 Miles

N

Hazard Risk Areas

Hazard Risk Areas are those geographic areas of the County most likely to be affected by a specific hazard. People and resources located within these areas are at risk and may be exposed to greater impacts from hazard events.

Randolph County, as a whole, is vulnerable to high winds events such as, thunderstorms, tornados, and hurricanes. These high wind events are multi-hazard events bringing with them the likelihood or possibility of heavy rain, flashflooding and stream flooding. Drought, heat waves, snow and ice events and earthquakes are also countywide hazards. Although these events are not location specific, hazard mitigation measures can be taken today which will mitigate or lessen the impact of these potential natural disasters

Natural disasters such as dam failures, floods, landslides, or vulnerability due to sinkholes or mine subsidence are location specific or more likely to occur in a specific geographic area. These areas are located on the following hazard maps. When these locations intersect with vulnerable populations they are designated as an area of primary concern.

Acceptable Risk

Through careful analysis of these documents, the following natural hazards were determined to present minimal hazard risk and therefore have an acceptable risk:

- **Landslide** – possible, low impact, high occurrence confined to region designated as rural growth management area.
- **Earthquake-** Epicenter likely in Charleston South Carolina area. Fault potentially could produce tremors in region up to 7.5 on Richter scale; however, the likelihood of tremors of this level is extremely low and the impact it would have on Randolph County is limited. The greatest impact could potentially be the possibility of tremors damaging the structural integrity of dams.
- **Heat wave** – likely, low impact
- **Wildfire** – highly likely, low impact

Natural Hazards of Concern

Natural hazards of immediate concern in developing mitigation goals, objectives and strategies are for Randolph County and its municipal jurisdictions may include:

High Wind Hazards

- Countywide vulnerability.
- Includes tornadoes, all tropical and extra tropical cyclonic systems, and severe thunderstorms. High winds are actually one element in these multi-hazard events characterized by wind, hail, lightning, rain and flood.
- Wind speeds will most likely be between 38 to 90 mph. Wind speeds greater than 90 mph are possible especially with tornadoes, however, mitigation strategies will be aimed at reducing the impacts of wind speeds up to 90 mph.
- Multiple yearly occurrences are likely.

Winter Storms

- Countywide vulnerability, including all municipalities.
- Impact: Critical facilities shut down for up to two weeks. Major power outages to facilities and service dependent upon electricity for operations.
- ***Ice storms*** produce most damage to trees, power lines, and buildings through snow loading and ice accumulation.

Flood

5.1% of Randolph County's total population lives in 2,539 occupied units at a value of $208,716,795 which are located in a designated special flood hazard area (SFHA). The total population exposed to a flood hazard totals 6,549. There are no floodplains located in the towns of Liberty, Seagrove, and Staley.

Floods, whether flashfloods or from river and stream flooding, is a risk to human life and property. Possible losses due to flood include: economic losses such as destruction of property and crop losses; environmental impacts, such as erosion, ground water and surface water contamination, damage to vegetation and wetlands ecosystems; and other impacts such as, business disruption and loss of income, loss in tax revenues, transportation disruption, the spread of illness due to contamination.

Flooding is a possibility throughout many areas of Randolph County. 5.1% of Randolph County's total population lives in 2,539 occupied units at a value of $208,716,795 which are located in a designated special flood hazard area (SFHA). The total population exposed to a flood hazard totals 6,549.

Vulnerability to river and stream flood damage is highly location-specific. Flood waters can snap trees, topple buildings, and move boulders. Floodwaters often have extremely strong currents and a small amount (18 to 20 inches of water) may wash a car from a road. Buildings and persons in floodplains are at risk of death, injury, or damage from flooding. Bridge abutments, roadways, sewer lines, and other structures within floodways can be seriously damaged. Rapid runoff causes soil erosion as well as sediment deposition downstream.

Flash floods can occur within a few minutes or hours from heavy rainfall or dam failure. Floods can destroy buildings and bridges, uproot trees, washout roads and cause considerable erosion. Flashflooding from stormwater runoff may become more common in urban areas where much of the ground is covered by impervious surfaces.

Note: there are no floodplains located in the towns of Liberty, Seagrove, and Staley.

- **Priority vulnerable areas**: Archdale, Asheboro, Franklinville, Trinity, and portions of Northeast and northwest Randolph County.

Dam Failure Hazard

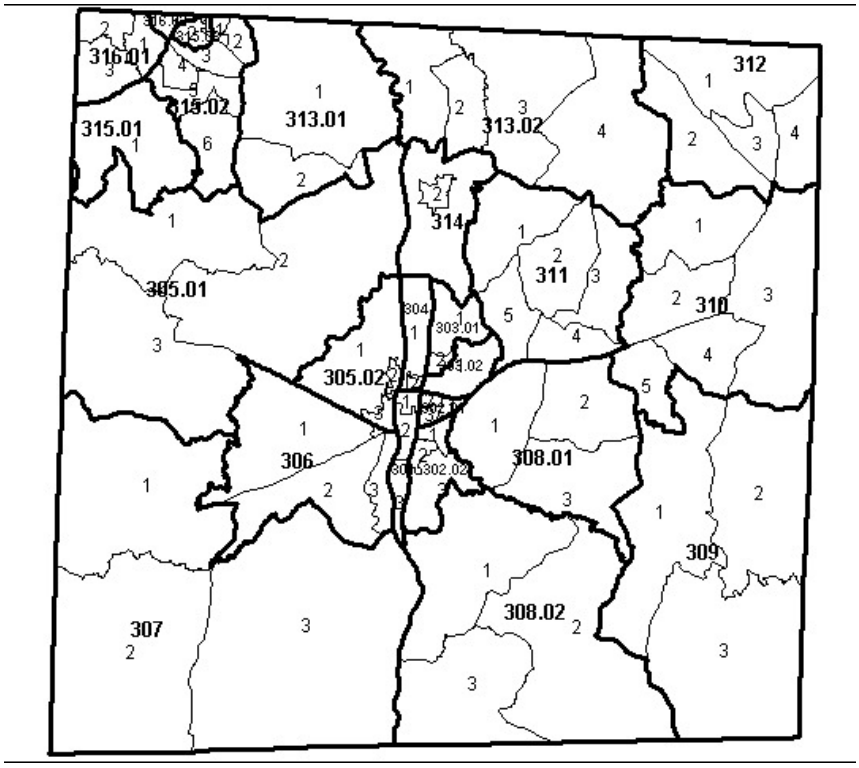
- Randolph County has 199 dams scattered throughout the county (139 low hazard, 37 intermediate hazard dams, and 23 high hazard dams.)
- While the likelihood of dam failure is low, a high hazard dam failure would cause catastrophic damage and result in death.

- **Priority vulnerable areas are:**
  - **Archdale:** Two high hazard dams with development downstream
  - **Franklinville:** Ramseur Water supply dam and Randolph Mill dam in need of maintenance. These dams would directly impact the town of Franklinville and the structures located within the floodplains. Currently there is no emergency supply water source for Franklinville and Ramseur.
  - **Randleman:** Main concern is the new Randleman Dam project. Though Randleman Lake is not filled, dam construction is completed. There are reported cracks in the dam in unexpected areas. Emergency Plans have not been developed and are not required until the dam is filled in 2005. Downstream development would be catastrophically impacted if the dam failed. Though the proposed lake area is known and mapped, floodplains surrounding the lake area have not been determined. The buffer area around the lake is to be 200 feet. The hazard mitigation plan will need to be revised and updated as more becomes known about the condition of the dam and as the project moves forward.
  - **Ramseur:** The Ramseur Water supply dam is in need of maintenance. Dam failure would catastrophically impact the town of Franklinville and also disrupt all water supplies to Ramseur and Franklinville.
  - **Trinity:** Two high hazard dams within city limits
  - **Northwest Randolph County:**
    Beard Lake dam is in the vicinity of the caraway creek floodplain. This neighborhood is vulnerable to both flood hazard and dam failure.

Sinkhole/Subsidence - Subsidence is the sudden (e.g., over two hours) or gradual downward movement of the ground surface (e.g., dropping by a few inches over a number of years.)

- The greatest potential for subsidence exists over abandoned underground mines, tunnels or shafts which includes gold mines. Tunnels and shafts may extend for hundreds of feet horizontally and vertically underground. There are over 33 abandoned gold mines with underground workings scattered throughout the County. The exact location of the mines and the extent of underground workings are unknown.
- Northwest Randolph County is a high concern area since it has multiple large mines scattered throughout the quadrant in areas designated as primary and secondary growth areas likely to be developed.

Hazard Map 1: The risk area for drought, heat wave, earthquake, ice events, snow events and wind hazards as occurs in hurricanes, thunderstorms, and tornadoes, covers the entire county area.



Hazard Map 2 includes: Extremely hazardous substance facilities; and 50-mile radioactive fallout area

This map identifies private facilities posing the greatest threat to human life and the environment if damaged by a severe storm, earthquake or tornado. This list is from the North Carolina Department of Emergency Management Tier II reporting system and includes the 50-mile emergency plan "ingestion area" of the Shearon Nuclear power Plant in New Hill, NC.

Hazard Map 3: Extremely hazardous substance facilities with overlay of watershed critical and protected areas

Hazard Map 4: Flood hazards

This map identifies flood plains (FIRMS 1980 with subsequent updates and revisions), high hazard dam and frequently flooded state roads. For a complete list of structures in floodplains throughout Randolph County and all municipalities, please refer to Appendix G.

Hazard Map 5: Floodplain building values

This map identifies the location and floodplain with the highest dollar values for structures in the 100-year floodplains. Those floodplains are priority geographic areas for floodplain mitigation activities.

Hazard Map 6: Landslide (Eastern Portion of County) and Sinkhole – areas with abandoned mines

Subsidence is the sudden or gradual downward movement of the ground surface. It can involve a rapid collapse of the ground, or it can be a slow process of ground dropping and settling over a period of years. This map shows known abandoned mine locations and can be used as a planning aid. A more detailed site-specific investigation is necessary to determine the extent of mine shafts and risk of subsidence. The greatest potential for subsidence exists over abandoned underground mine workings such as tunnels and shafts and most likely occur at gold-related (precious metal) mines. There is little information as to the extent of the mining operations; tunnels and shafts may extend for hundreds of feet underground. Damage to buildings and other structures can occur if construction occurred above underground workings. The potential for subsidence increases as these abandoned areas are developed.

All Hazard Map of Randolph County with
Growth Management Areas and Critical Facility Overlay
(NO other current land use map exists)

All Hazard Map of Archdale with Critical Facility Overlay

All Hazard Map of Asheboro with Critical Facility Overlay

All Hazard Map of Franklinville with Critical Facility Overlay

All Hazard Map of Liberty with Critical Facility Overlay

All Hazard Map of Ramseur with Critical Facility Overlay

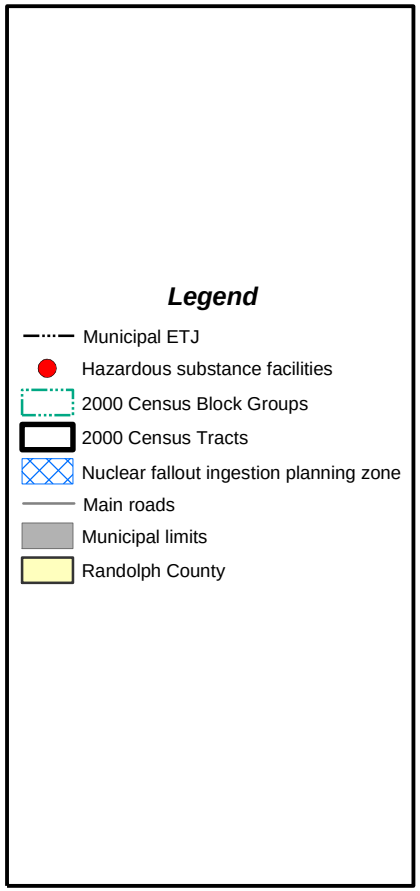
All Hazard Map of Randleman with Critical Facility Overlay

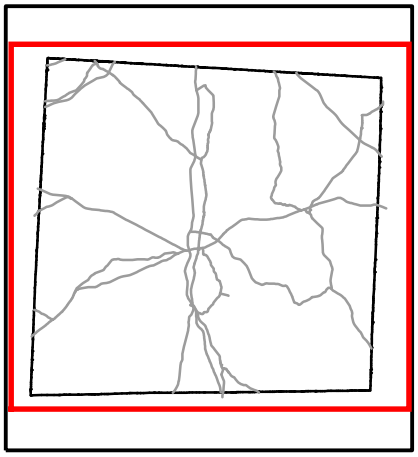
All Hazard Map of Seagrove with Critical Facility Overlay

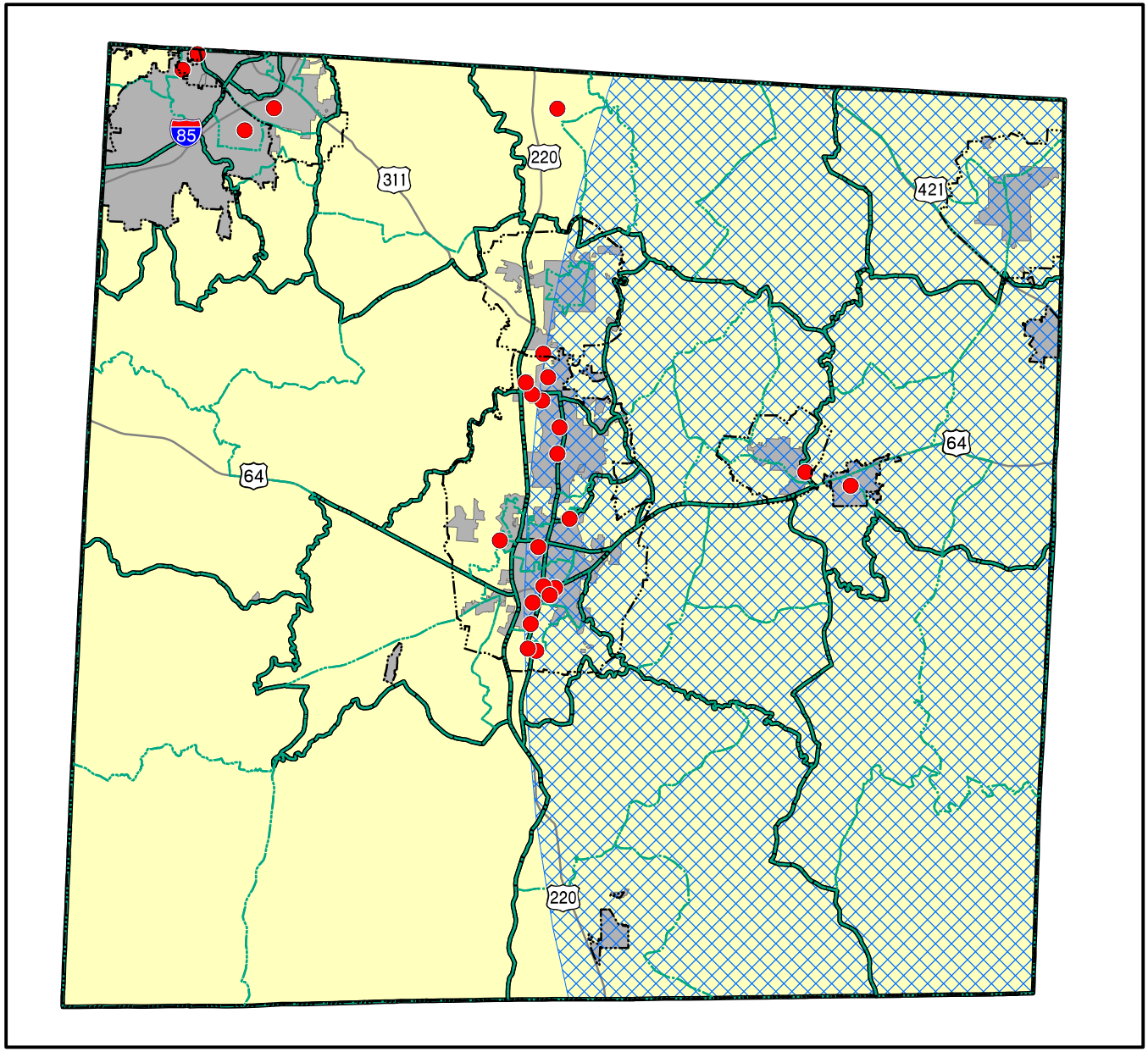
All Hazard Map of Staley with Critical Facility Overlay

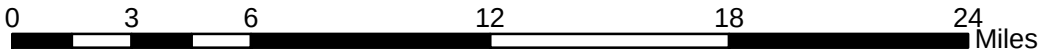
All Hazard Map of Trinity with Critical Facility Overlay

Randolph County Hazard Mitigation Plan: Hazardous Facilities Map

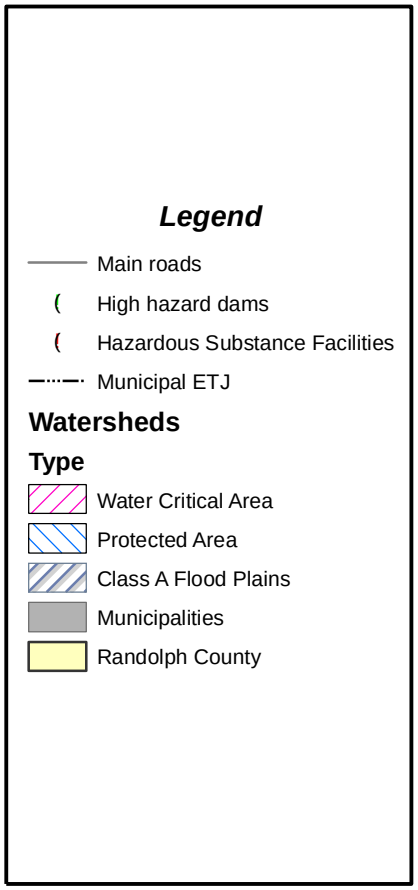


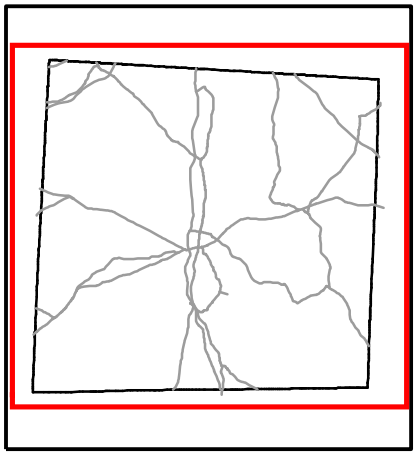


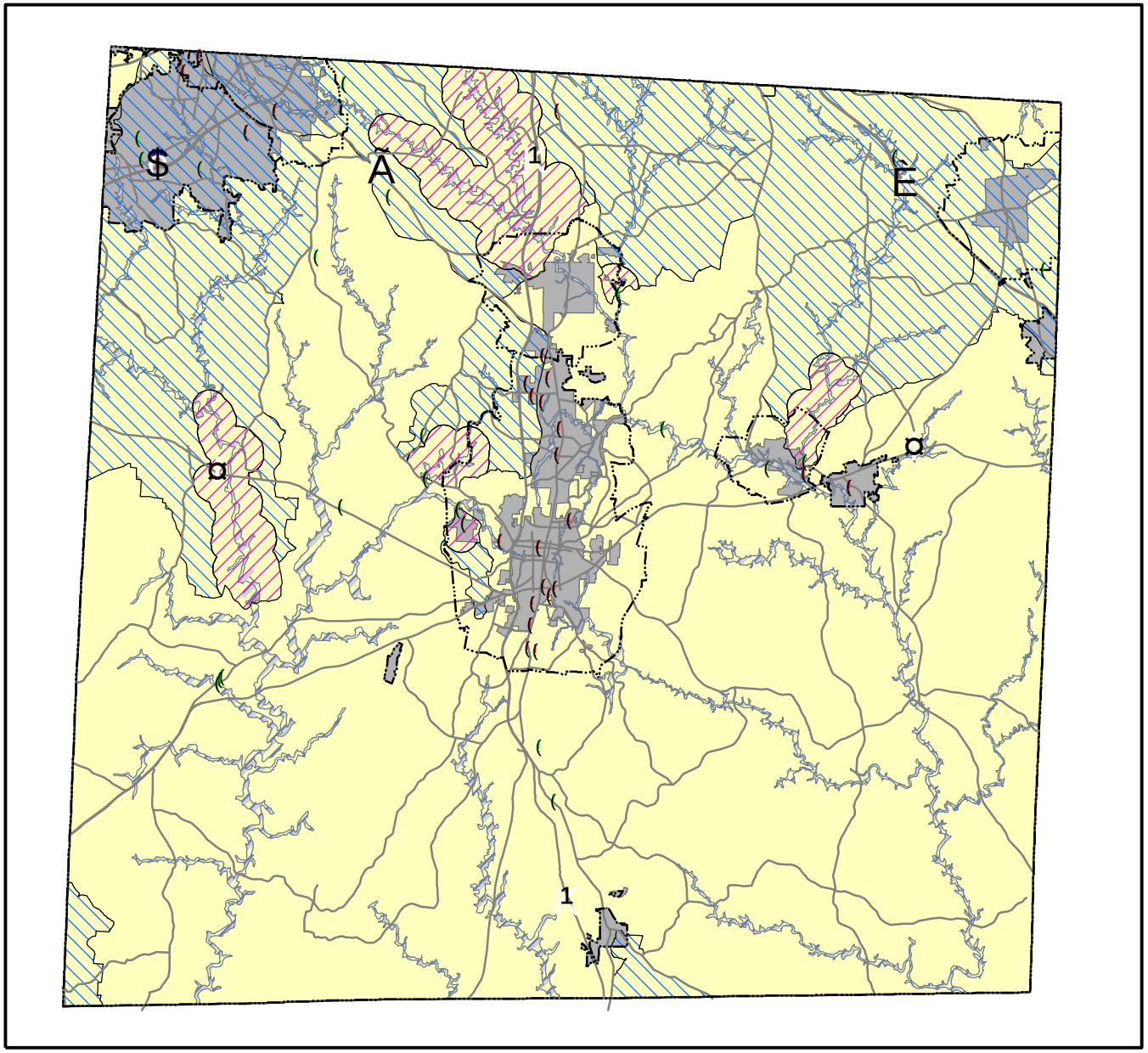


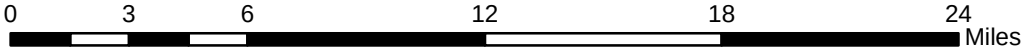


Randolph County Hazard Mitigation Plan: High Hazard Facilities Map









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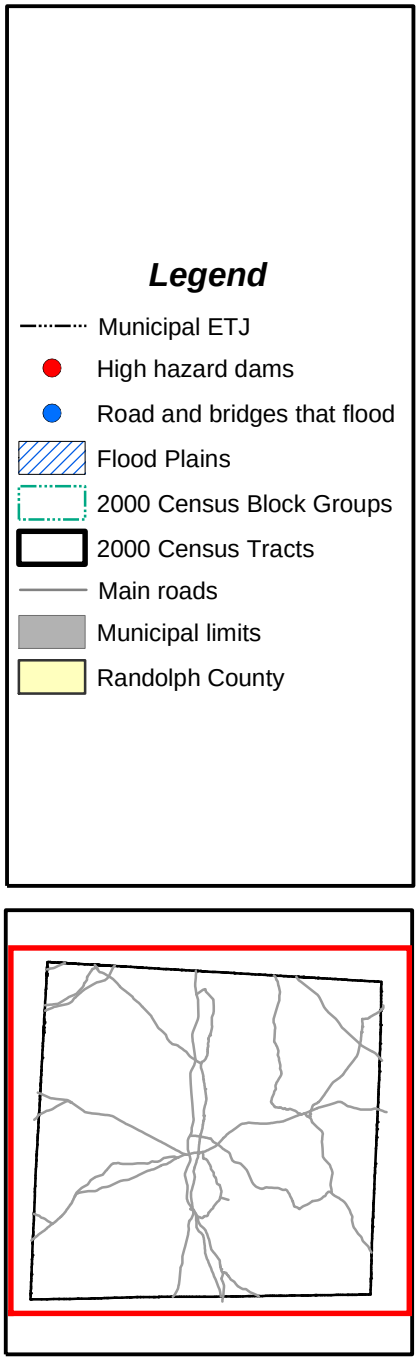
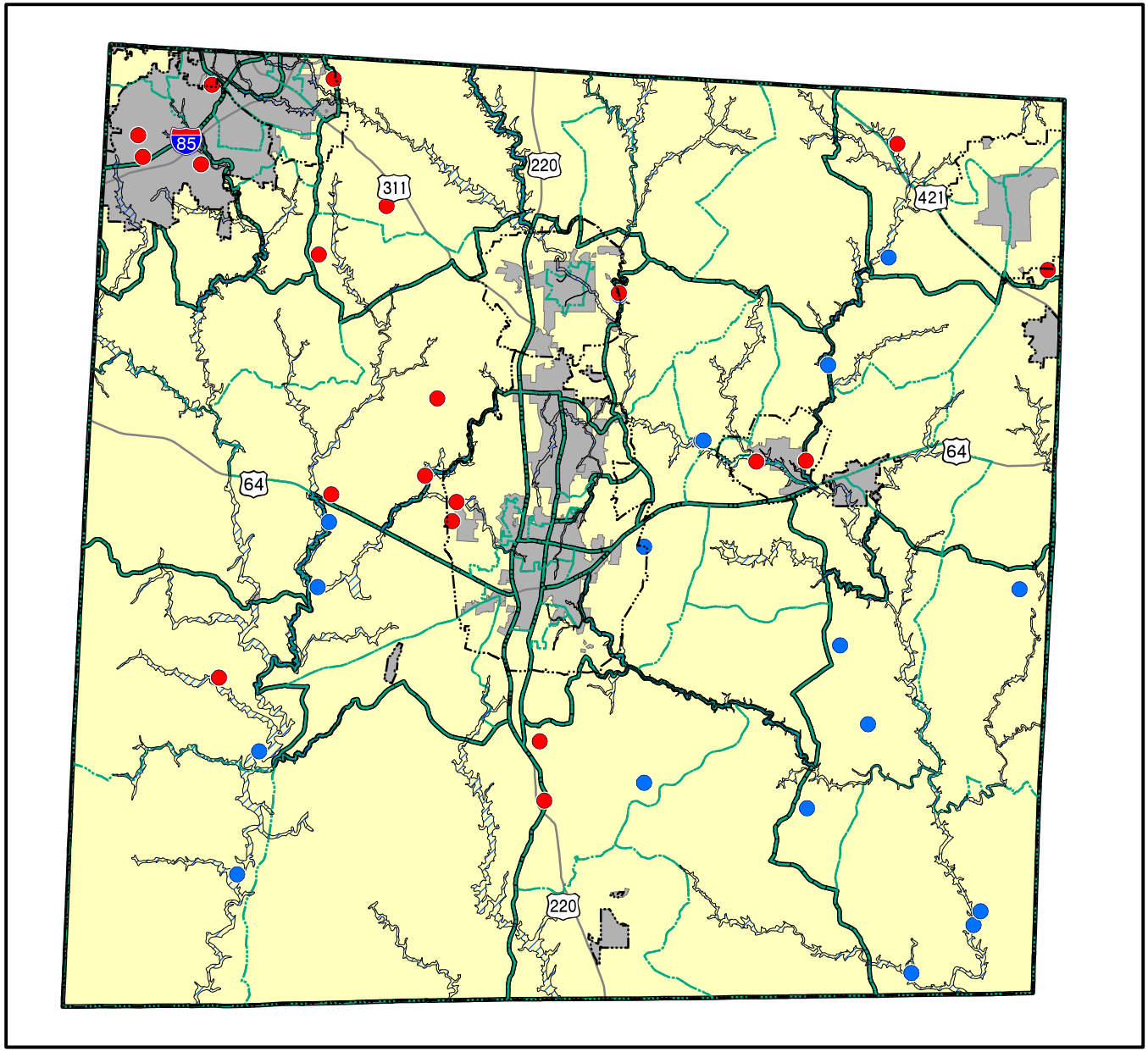
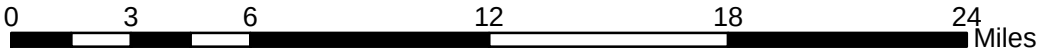
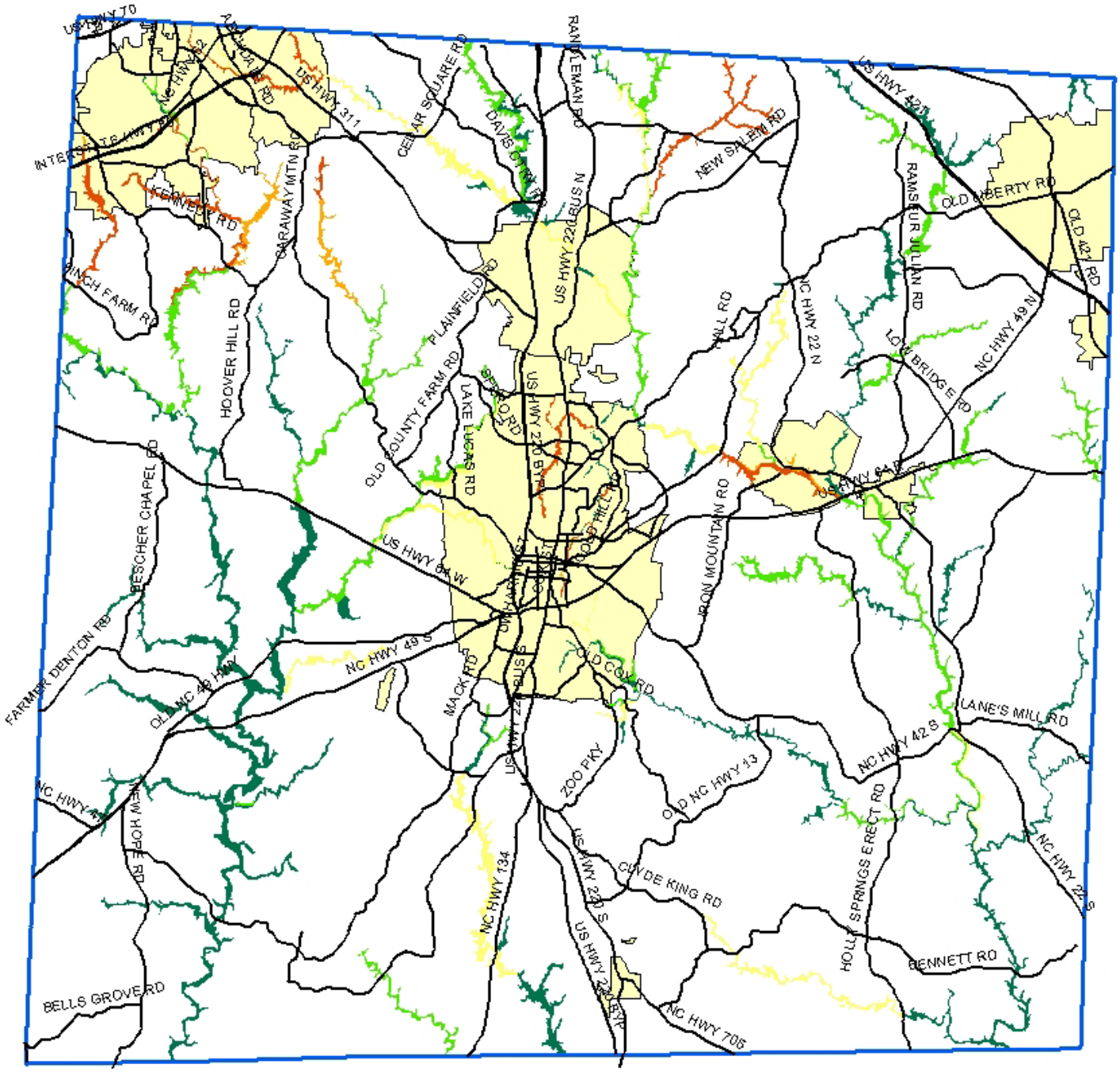
Randolph County Hazard Mitigation Plan: Flood Hazards Map







Randolph County and Municipal Floodplain Building Values



FLOOD PLAIN

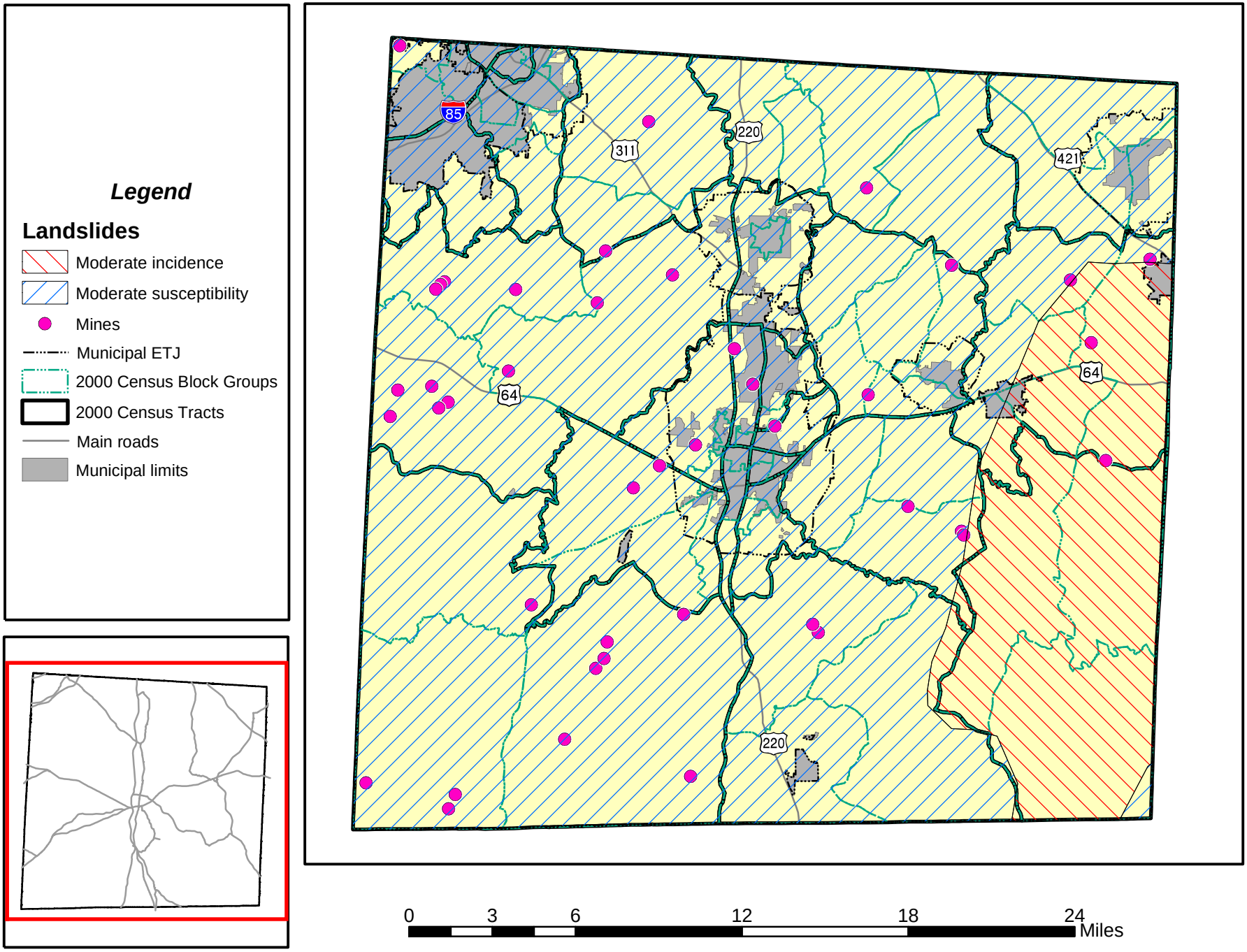
TOTBLDGVAL

- 0.000000 - 50000.000000
- 50000.000001 - 250000.000000
- 250000.000001 - 500000.000000
- 500000.000001 - 1000000.000000
- 1000000.000001 - 24695610.000000

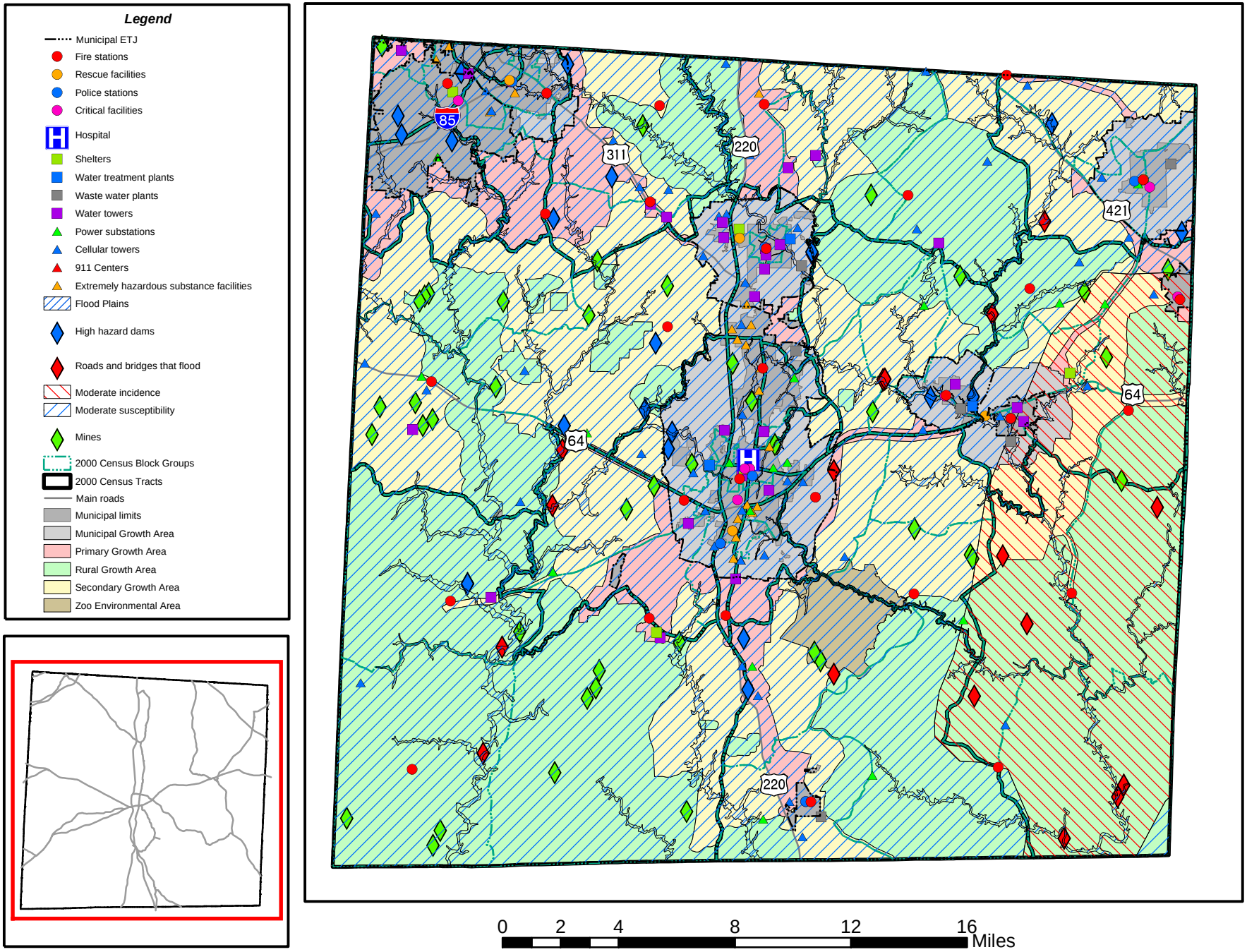
N

RANDOLPH COUNTY COMPUTER SERVICES
FPBLDGVAL.MXD - JUNE 25, 2003

Randolph County Hazard Mitigation Plan: Landslide and Sinkhole Map



Randolph County Hazard Mitigation Plan: Total Hazards Map



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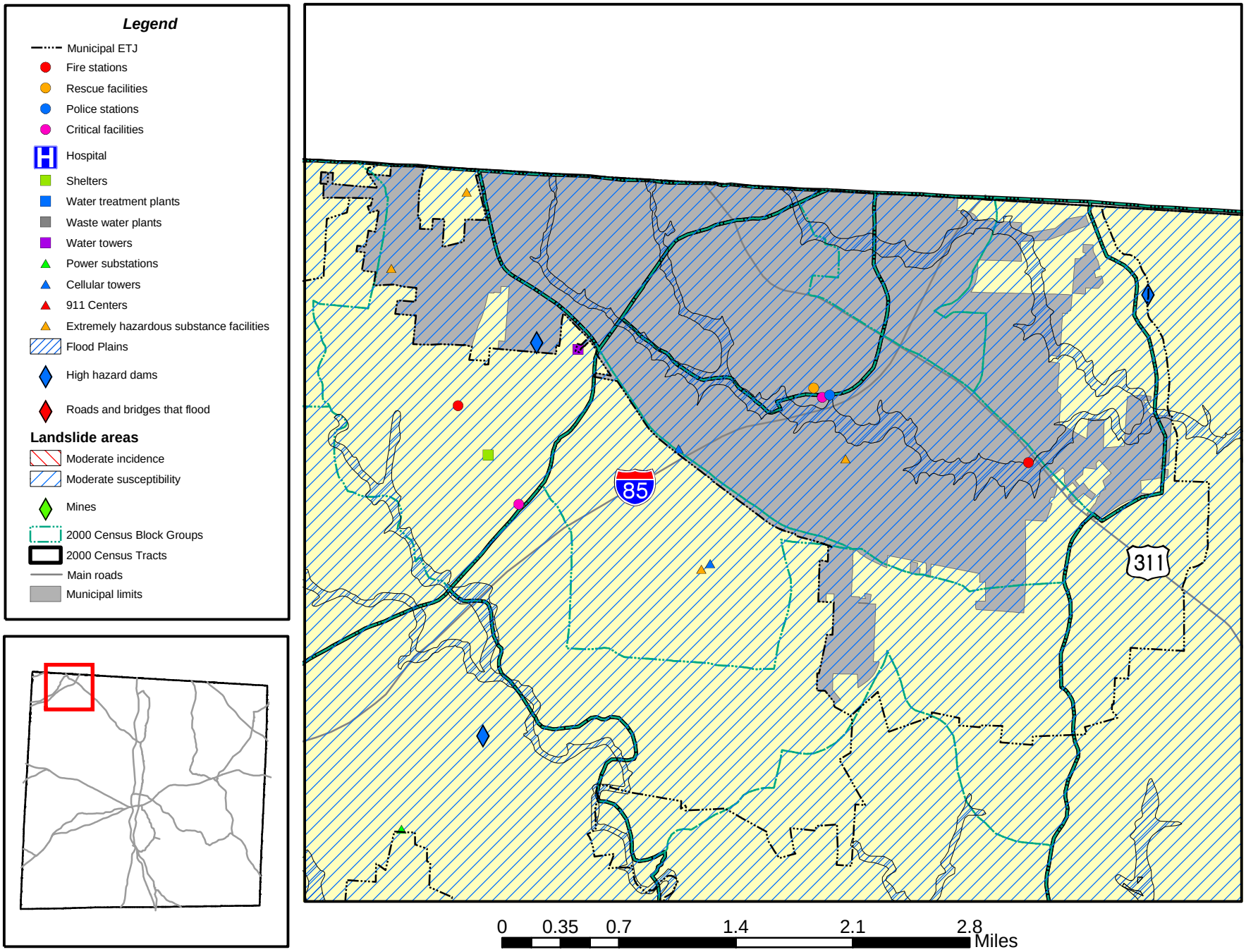
Randolph County Hazard Mitigation Plan: Total Hazards Map for City of Archdale



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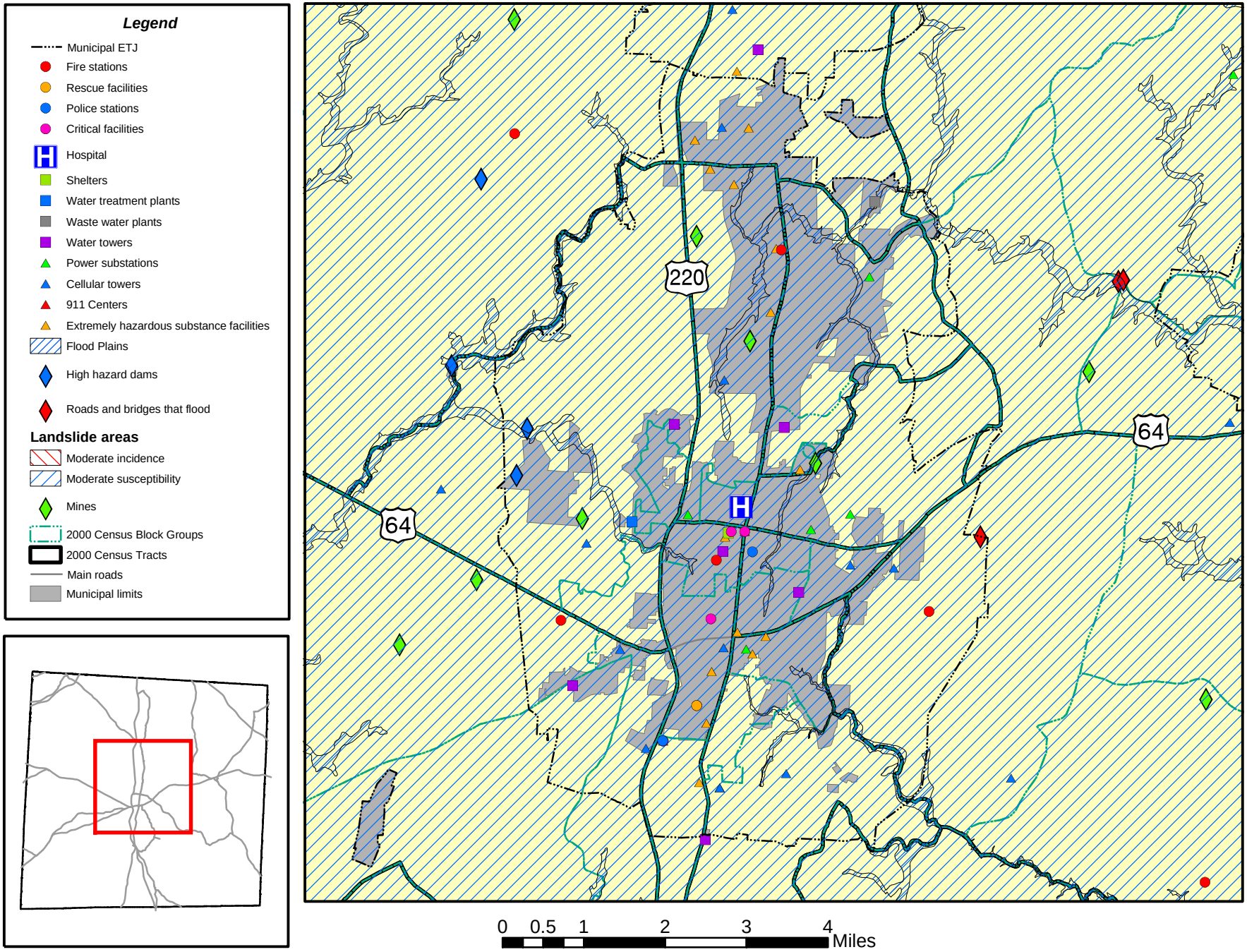
Randolph County Hazard Mitigation Plan: Total Hazards Map for City of Asheboro



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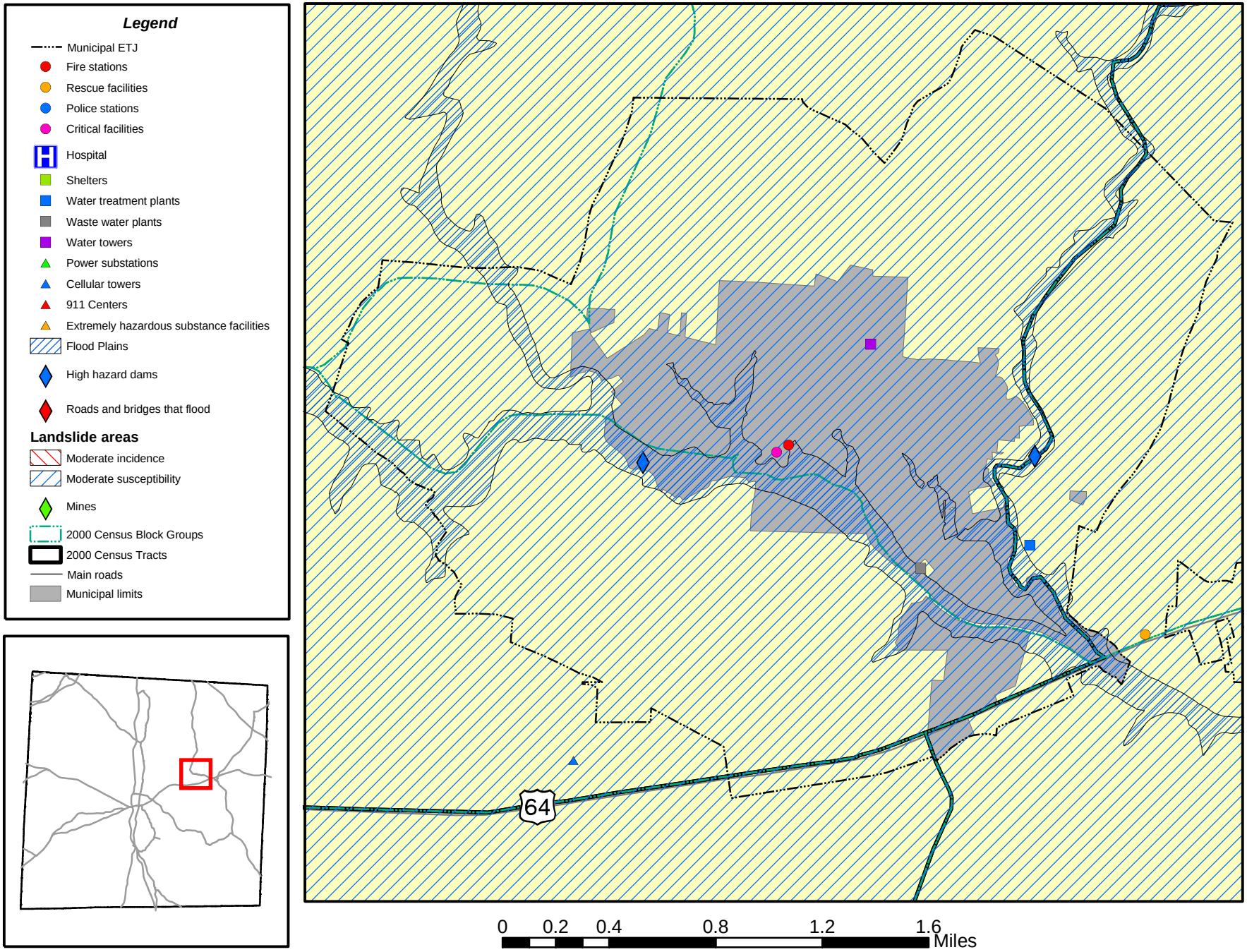
Randolph County Hazard Mitigation Plan: Total Hazards Map for Town of Franklinville



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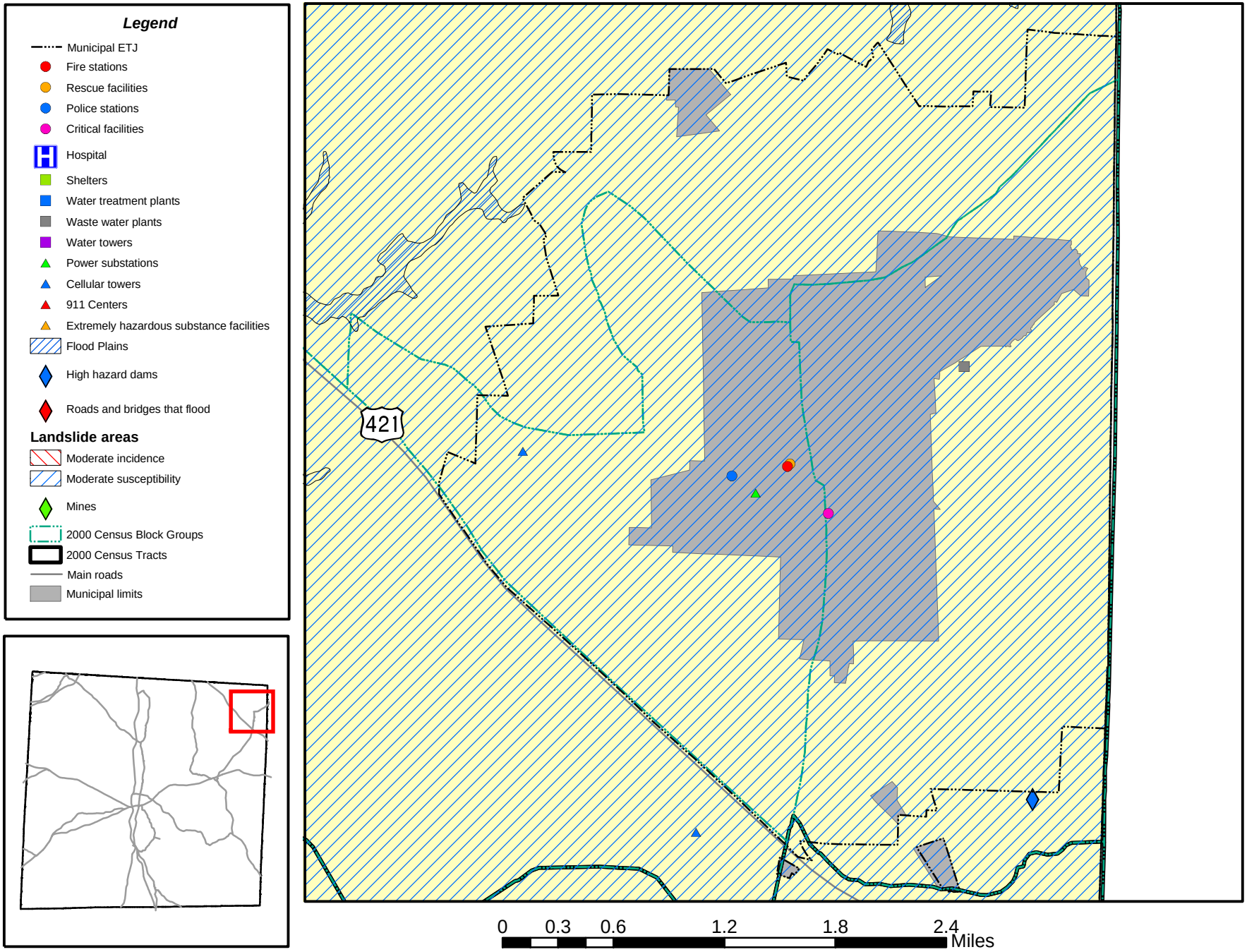
Randolph County Hazard Mitigation Plan: Total Hazards Map for Town of Liberty



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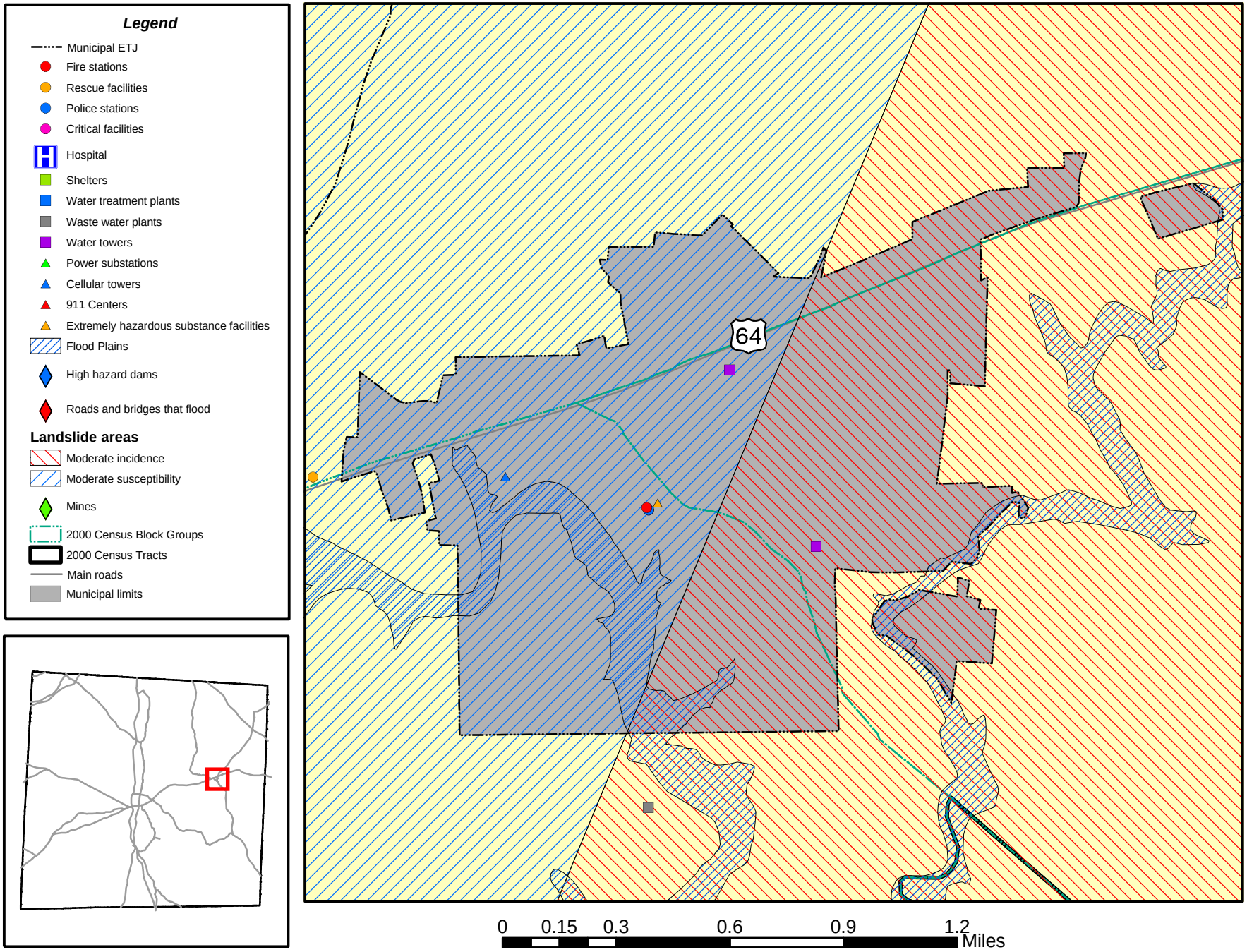
Randolph County Hazard Mitigation Plan: Total Hazards Map for Town of Ramseur



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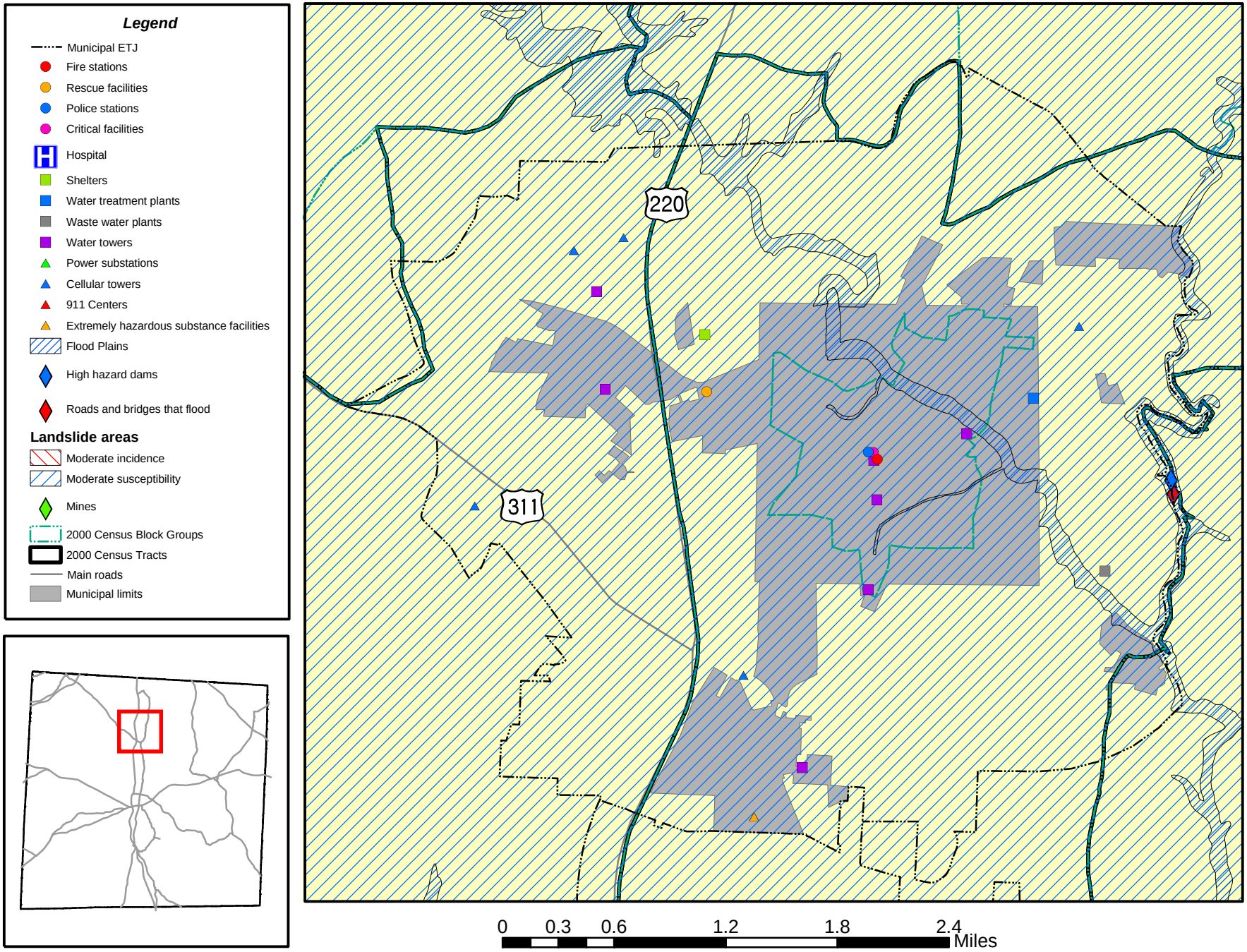
Randolph County Hazard Mitigation Plan: Total Hazards Map for City of Randleman



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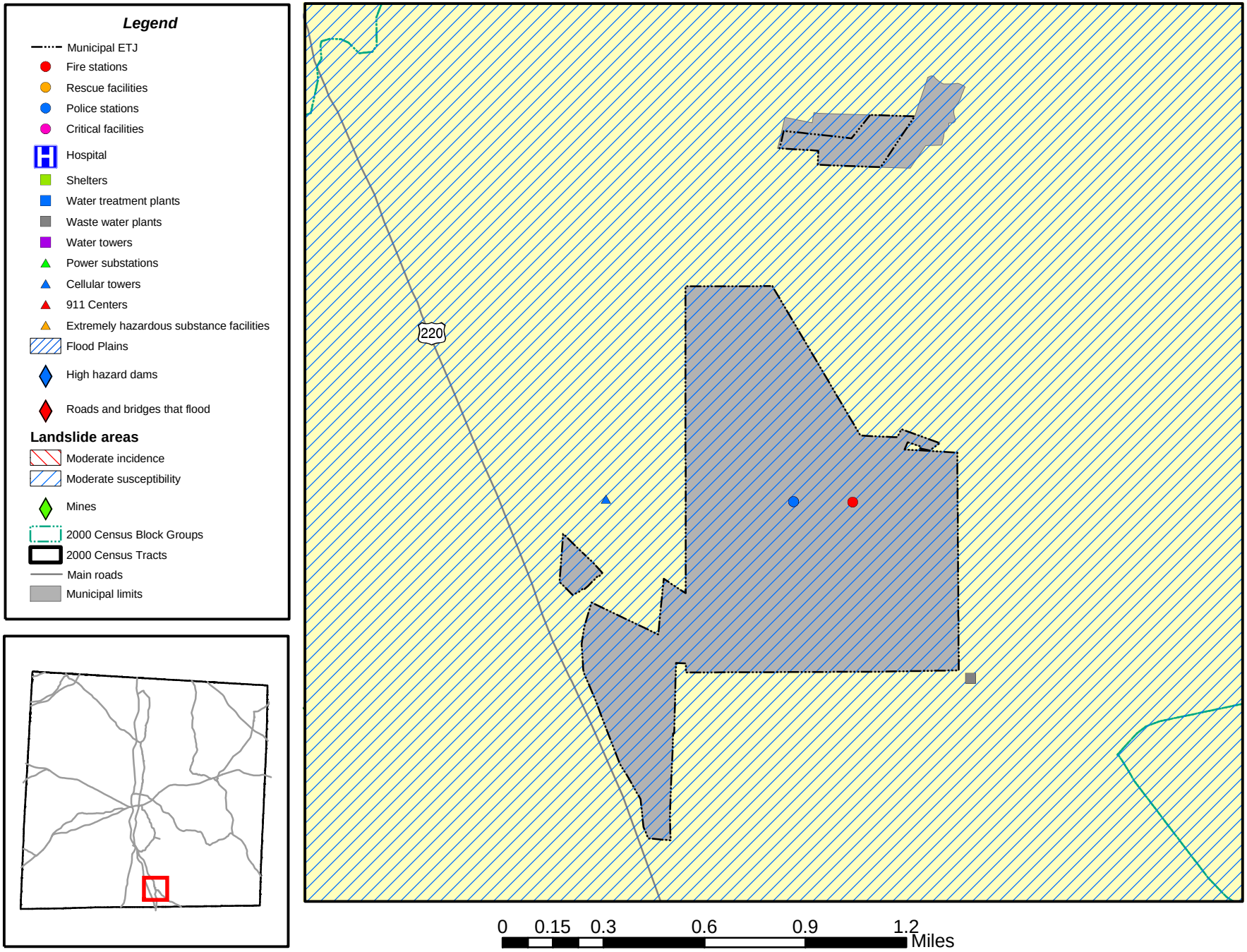
Randolph County Hazard Mitigation Plan: Total Hazards Map for Town of Seagrove



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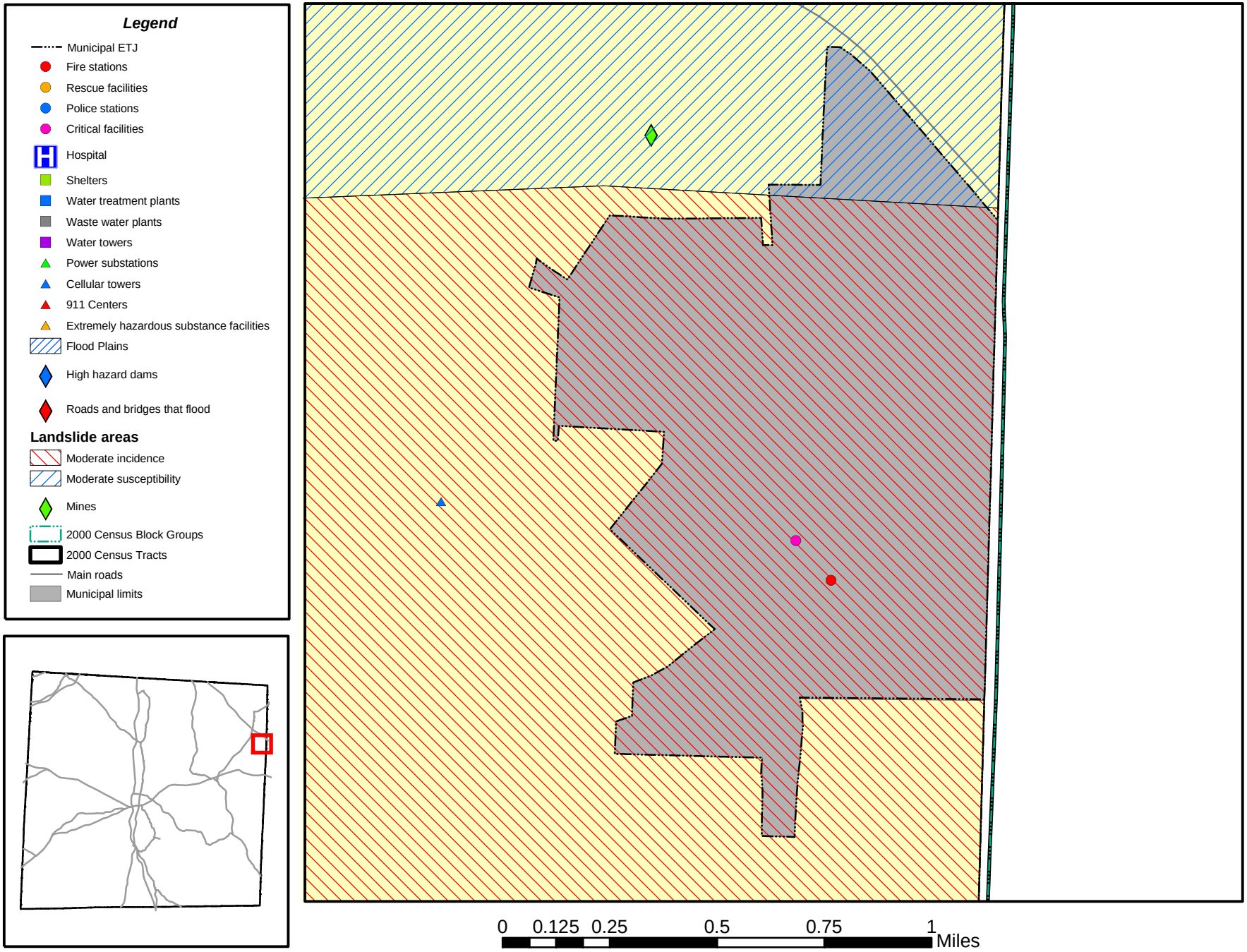
Randolph County Hazard Mitigation Plan: Total Hazards Map for Town of Staley



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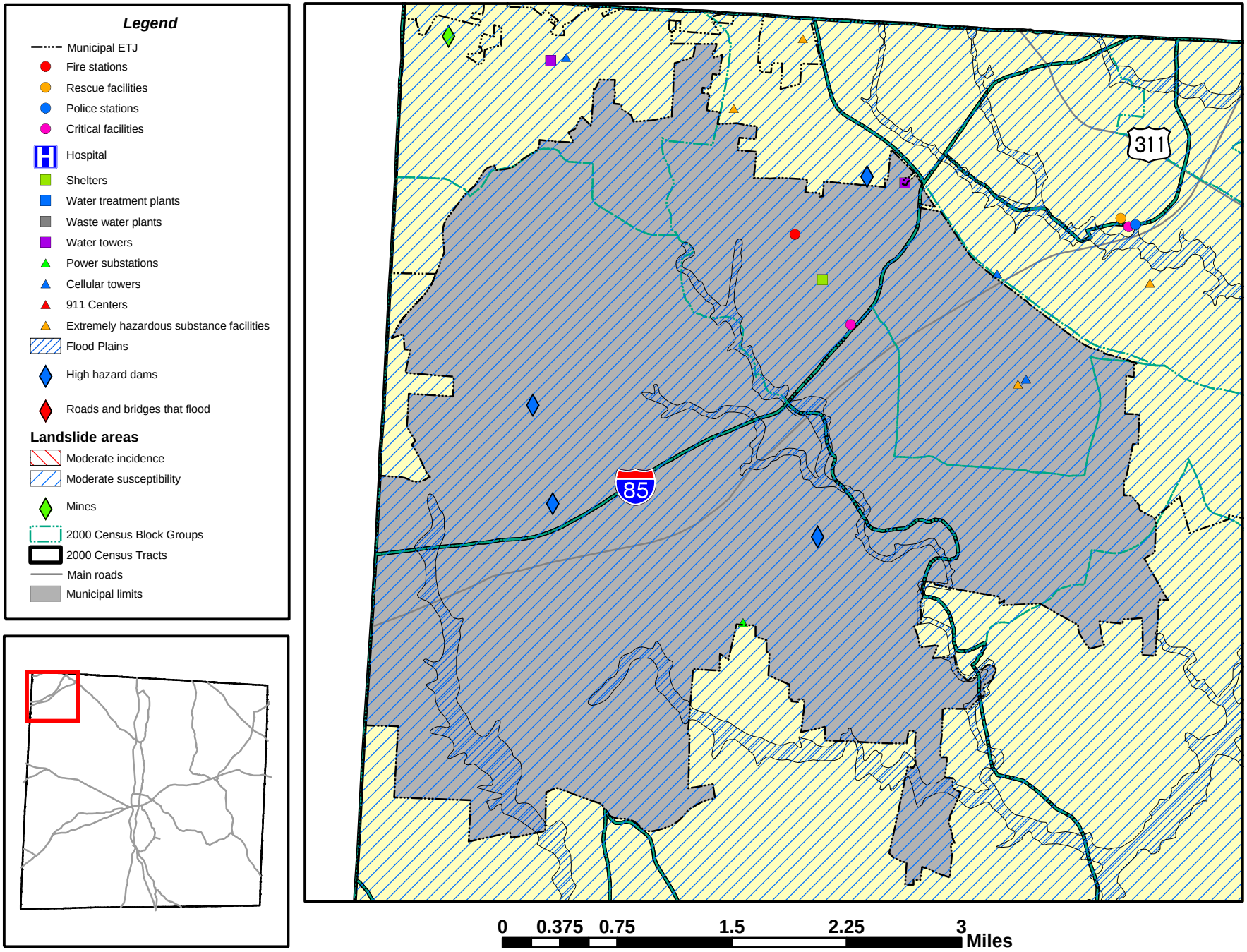
Randolph County Hazard Mitigation Plan: Total Hazards Map for City of Trinity



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Vulnerable Populations

Vulnerability is defined as the level of exposure combined with lack of resources, which would result in a high impact/loss on the population or area as a result of the hazard event.
Vulnerable populations are those in areas susceptible to the impacts from a natural disaster. Census data at the block group level was used to identify areas where the population may lack resources to safely respond to, or recover from, a disaster event.

Vulnerable populations were identified as those persons who are do not speak English or those who do not speak English well, who do not have accesses to vehicles, households without a telephone, those below the poverty level, and the presence or concentration of critical facilities in a high hazard risk area. Each variable was indexed to give a composite score for level of vulnerability and the area was assigned a vulnerability level of extremely high, high, moderate, or low.

Mobile homes and manufactured homes

Another population specifically at risk from flood and high wind events is persons living in mobile homes or manufactured homes. When possible, mobile home parks located in flood plains were identified. Mobile homes are more likely to become floating debris in a flood event increasing the likelihood of injury, death, and structural damage as the structure is carried by water currents. In addition, mobile homes and manufactured homes are more susceptible to wind damage in the event of a thunderstorm, tornado, hurricane, or other wind event.

This vulnerable population extends to school use of mobile units for classrooms. By the summer of 2003 Randolph County Schools will have 72 mobile classroom units. By code these mobile units must be tied down. Evacuation policies exist at each school in the event of an adverse weather event. [2]

Intersection of Risk and Vulnerability

The following table provides an overall picture of the hazards and vulnerability associated with the northwest, southwest, northeast and southeast portions of the County as well each municipal jurisdiction. The profiles depicted are designed to provide information on the most severe hazard threat facing each area as well as to determine the location of vulnerable populations. Areas of primary concern are those areas where a hazard predominates or the hazard threat intersects with highly vulnerable populations.

[2] *NFIP FEMA website*

Hazard Risks and Vulnerable Populations by Census Block Group

Quadrant	Jurisdiction	Census Block group	Risk of Landslide as determined by USGS map	Within nuclear fallout area (50 mile radius of Shearon Nuclear facility)	Presence of one or more Extremely Hazardous Substance Facilities (from NC Emergency Management)	Presence of one or more abandoned Mine Shafts	Occupied units in Floodplain: >7.5% occupied units in SFHA; 3% - 7.49% of occupied units in SFHA	Presence of one or more High Hazard Dam(s)	Population Vulnerability Index: Extremely vulnerable; Highly vulnerable; Moderately vulnerable	Randolph County designated Growth Management Areas: Municipal; Primary; Secondary; Rural
	Archdale	315021					9%			
	Archdale	315022					8%			
	Archdale	315023					7.8%			
	Archdale	315031					12.2%			
	Archdale	315032					8.8%			
	Archdale	316021					6.9%			
	Archdale/prt	316011								
	Asheboro	301001							High	
	Asheboro	301002								
	Asheboro	301003								
	Asheboro	302011							Moderate	
	Asheboro	302012					3.9%			
	Asheboro	302013					3.6%			
	Asheboro	302021					5.3%			
	Asheboro	302022								
	Asheboro	303011					4.1%		High	
	Asheboro	303012								
	Asheboro	**304001**					**7.7%**		High	
	Asheboro	304002							High	
	Asheboro	305022								
	Asheboro	305023								
	Ash/Rand	303021							Extremely high	
	Franklinville	**311003**					**5.9%**			
	Franklinville	**311004**					**9%**			
	Liberty	312003							High	
	Liberty	312004								
	Ramseur	310004					5.8%			
	Ramseur	310005					9.5%			
	Randleman	314002					4.4%		Moderate	
	Seagrove	308023								
	Staley	310003								
	Trinity	**315011**					**9.1%**		High	
	Trinity	315024								
	Trinity	316013								

Quadrant	Jurisdiction	Census Block group	Risk of Landslide as determined by USGS map	Within nuclear fallout area (50 mile radius of Shearon Nuclear facility)	Presence of one or more Extremely Hazardous Substance Facilities (from NC Emergency Management)	Presence of one or more abandoned Mine Shafts	Occupied units in Floodplain >7.5% occupied units in SFHA 3% - 7.49% of occupied units in SFHA	Presence of one or more High Hazard Dam(s)	Population Vulnerability Index Extremely vulnerable Highly vulnerable Moderately vulnerable	Randolph County designated Growth Management Areas Municipal Primary Secondary Rural
	Trinity & Archdale	315025								
	Trinity & Archdale	316011								
1	Randolph County	305011					6.4%		Moderate	
1	**Randolph County**	**305012**					**5.0%**		Extremely high	
1	**Randolph County**	**305013**					**5.4%**		High	
1	Randolph County	305021					6.9%		Extremely High	
1	**Randolph County**	**313011**					**6.8%**			
1	Randolph County	313012					5.0%			
1	Randolph County	315026					8.1%			
1	Randolph County	316012								
2	Randolph County	310001					5.4%			
2	Randolph County	310002							High	
2	Randolph County	310003								
2	Randolph County	311001					5.4%			
2	Randolph County	311002					7.3%			
2	Randolph County	311003					5.9%			
2	Randolph County	311004					9.0%		High	
2	Randolph County	311005					6.9%			
2	Randolph County	312001					5.3%			
2	Randolph County	312002					7.8%			
2	Randolph County	313021					7.5%			

Quadrant	Jurisdiction	Census Block group	Risk of Landslide as determined by USGS map	Within nuclear fallout area (50 mile radius of Shearon Nuclear facility)	Presence of one or more Extremely Hazardous Substance Facilities (from NC Emergency Management)	Presence of one or more abandoned Mine Shafts	Occupied units in Floodplain >7.5% occupied units in SFHA 3% - 7.49% of occupied units in SFHA	Presence of one or more High Hazard Dam(s)	Population Vulnerability Index Extremely vulnerable Highly vulnerable Moderately vulnerable	Randolph County designated Growth Management Areas Municipal Primary Secondary Rural
2	Randolph County	313022					5.1%			
2	Randolph County	313023					7.5%			
2	Randolph County	313024								
2	Randolph County	314001					3.9%		High	
3	Randolph County	302023					3.9%		High	
3	Randolph County	308011								
3	Randolph County	308012					6.6%			
3	Randolph County	308013							Moderate	
3	Randolph County	308021							Moderate	zoo
3	Randolph County	308022							Moderate	
3	Randolph County	309001					5.0%			
3	Randolph County	309002					3.9%			
3	Randolph County	309003					4.5%			
4	Randolph County	306001					10.4%		Moderate	
4	Randolph County	306002								
4	Randolph County	306003					5.0%			
4	Randolph County	307001					9.5%			
4	Randolph County	307002					5.3%			
4	Randolph County	307003					3.2%		High	

ANALYSIS

Countywide Hazard Risk

Randolph County and its municipal jurisdictions are equally vulnerable to high wind events such as those associated with severe thunderstorms, tropical and extra tropical systems, snow and ice events, flashflooding, and drought. All persons, critical facilities, buildings and infrastructure are vulnerable to these countywide hazards to some degree. It is unlikely that this damage would be catastrophic, but may include the possibility of severe injuries, shutdown of critical facilities for two days or more; and 5% to 10% of property damaged, including agricultural (both crop and livestock.)

High wind events are highly likely to bring winds of between 38 and 73 miles per hour with winds of 74 to 100 mph possible. Tornados are likely with a probable intensity of F1 on the Fujita Pearson scale, which means wind speeds of 73-110 miles per hour (Category 1 hurricane winds on the Saffir Simpson scale.) However, the wind zone map of Texas Tech University shows 200 mph winds (as in a F3 or F4 tornado) are possible in central North Carolina. Additionally, these high wind events are likely to carry with them the high probability of flash flooding and/or river and stream flooding, as well as lightning and hail. The impact of these multi-hazard events will result in continued downed power lines and power outages, fallen trees and tree damage, roof damage, and flooding of roadways and buildings. Most susceptible to the damaging effects of high winds are mobile homes, modular units including modular classrooms for county schools, and manufactured homes.

Vulnerability to ice and snow storms are countywide and will result in continued wide spread power outages, downed trees and limbs, as well as potential structure and building damage from falling trees and branches, or accumulation of snow on rooftops not designed to handle the snow load.

Potential Losses for Countywide Hazards

When describing the vulnerability in terms of an estimate of potential dollar losses to structures, the tax value of the structure was used. Land value was not considered. For countywide hazards, 5-10% damage was assumed for severe impacts of major ice storms, high wind events or multi-hazard events. This 5-10% damage estimate is for severe impacts as described in Appendix A, page 1. Number of persons per household in Randolph County averages 2.3. Current countywide employment figures (average of 14 persons per structure) were used to estimate number of persons occupying commercial, industrial and “other” structures. Future development was calculated from average annual historical increases in structures of each type. Generally, when considering damage impacts of location specific hazards, such as flooding or dam failure, the entire value of the structure was used to assess damage and loss potential.

Geographic Planning Area **Countywide**
Hazard **Multi-hazards (severe high wind, snow, ice, multi-hazard events)**

CURRENT CONDITIONS

Type of development	# of existing buildings	Current value	5% damage estimate	10% damage estimate	10% of population impacted
Single family	44,606	$4,270,922,800.00	$213,546,140.00	$427,092,280.00	10,259
Multi-family	942	$160,650,830.00	$8,032,541.50	$16,065,083.00	217
Commercial and industrial	3,303	$1,029,769,940.00	$51,488,497.00	$102,976,994.00	2,312
Critical facilities	98	$161,601,990.00	$8,080,099.50	$16,160,199.00	38
Other (including infrastructure, roads, bridges, etc.)	9,460	$1,341,897,990.00	$67,094,899.50	$134,189,799.00	13,244
Subtotals	58,409	$6,964,843,550.00	$348,242,177.50	$696,484,355.00	26,070

Geographic Planning Area **Countywide**
Hazard **Multi-hazards (severe high wind, snow, ice, multi-hazard events)**

FUTURE CONDITIONS

Type of development	Projected # of buildings	Projected value	5% damage estimate	10% damage estimate	Projected # of people impacted
Single family	46,006	$4,404,969,608.05	$220,248,480.40	$440,496,960.81	10,581
Multi-family	1,042	$177,705,058.24	$8,885,252.91	$17,770,505.82	240
Commercial and industrial	3,803	$1,185,653,975.73	$59,282,698.79	$118,565,397.57	2,662
Critical facilities	102	$168,197,989.59	$8,409,899.48	$16,819,798.96	38
Other (including infrastructure, roads, bridges, etc.)	9,550	$1,354,664,461.36	$67,733,223.07	$135,466,446.14	13,370
Subtotals	60503	$7,291,191,092.97	$364,559,554.65	$729,119,109.30	26,891

Repetitive Loss Structures:

Randolph county and its municipalities have no recorded repetitive loss structures.

Location Specific Hazard Risks

Area 1: Northwest quadrant which is the area left of US 220 and north of US 64.

The northwest quadrant is an area of primary concern for Randolph County. Northwest Randolph has moderate to high flood prone areas. In addition, there is some risk of dam failure and mine subsidence due to the numerous abandoned underground mine workings. Northwest Randolph County is predominantly designated as municipal growth areas and primary and secondary growth areas and the highest population density in the county.

This area has approximately 478 occupied units in the SFHA zone with an estimated value of the structures at $36,053,758.60 and 1252 persons exposed to flood hazards. The Caraway Creek floodplain and Beard Lake Dam (especially through Clover Drive and Oak View Drive) have numerous single-family dwellings located either directly downstream of the dam or within the floodplain.

Geographic Planning Area **Beard Lake Dam**
Hazard **Dam Failure**
CURRENT CONDITIONS

Type of development	Number of existing private buildings	Current value	Current number of people
Single-family residential	37	$4,644,380.00	92.5
Multi-family residential	0	$0.00	0
Commercial	0	$0.00	0
Industrial	0	$0.00	0
Other	0	$0.00	0
Subtotal	**37**	**$4,644,380.00**	**92.5**

PUBLIC BUILDINGS AND CRITICAL FACILITIES

Type of facility	Number of existing public buildings and critical facilities	Current replacement value	Current number of people
Sewage treatment plant	0	$0.00	0
Water treatment plant	0	$0.00	0
Hospital	0	$0.00	0
Schools	0	$0.00	0
Infrastructure	0	$0.00	0
Police station	0	$0.00	0
Fire station	0	$0.00	0
Hazardous material facilities	0	$0.00	0
Government offices	0	$0.00	0
Public shelter	0	$0.00	0
Subtotal	**0**	**$0.00**	**0**

TOTAL:	***37***	***$4,644,380.00***	***92.5***

There are approximately nine or ten abandoned mines throughout the northwest County area. Of particular concern are abandoned gold mines which are generally underground mines with shafts that increase the likelihood of ground subsidence. Their exact locations are not accurately mapped, nor are there much data on the extent of underground shafts. However, the Sawyer mine, located 7.8 miles northwest of Asheboro has a total of seven shafts with the deepest shaft being 150 feet. The Hoover Hill mine has at least two shafts over 350 feet deep with numerous smaller shafts nearby.

Other high hazard dams located in northwest Randolph County:

- Joe Lambeth Dam (breached)
- King Lake Dam
- Ingold Dam
- Lucas Lake Dam
- Asheboro Country Club Lake Dam
- Holly Ridge Golf Links Dam No. 1

Area 2: Northeast quadrant includes county area east of US 220 and north of US 64

Northeast quadrant has moderate to high flood prone areas. At risk for flooding is an exposed population of 1124 persons with 431 occupied housing units within the special flood hazard area. These units are valued at an estimated $33,462,500. There are approximately seven abandoned mines throughout the northeast County area. Their *exact* locations are not accurately mapped, nor are there much data on the extent of underground shafts. Depth and length of most shafts are unknown. The Redding and Scarlet shafts are from 50 to 60 feet deep.

Four high hazard dams are located in northwest Randolph County:

- Cox Lake Dam (FERC exempt)
- Randleman City Lake Dam
- Dodson Lake Dam
- Overman Lake Dam

Area 3: Southeast quadrant includes all area south of US 64 and east of 220

Southeast Randolph has two hazards unique to the county: according to USGS maps, the eastern portion of Randolph County has a high incidence of landslide, although there is no formal record or anecdotal memory of occurrences. Approximately the same area of landslide hazard risk is also within a 50-mile radius of the Shearon Nuclear Facility in Raleigh. The Nuclear Regulatory Commission has designated the 50-mile zone around each nuclear power station as an "Ingestion Exposure Pathway Zone" which means that the main exposure in the event of a nuclear disaster is from ingestion of contaminated water, fish or other aquatic foods, as well as milk and fresh vegetables. While planning for the 50-mile zone is left to the state, cooperation from local governments, particularly at the county level is necessary. If an evacuation of the 10-mile emergency plan area was is in effect, voluntary evacuations within a 50-mile area would likely occur. The towns of Staley, Liberty, Ramseur and Franklinville and most of the western portion of rural Randolph County fall within this 50-mile zone. US 64 west is the main evacuation route.

Risk of flooding is lowest in this area of the county with an estimated 255 occupied units in a flood plain and 650 people exposed to the hazard. Occupied units in the floodplains are valued at $19,000,000. This area is designated as a rural growth area and is not likely to be developed in the near future. There are five abandoned mine shafts in the southeast area.

Area 4: Southwest Quadrant includes all area south of US 64 and west of 220

The southwest quadrant has moderate to high instance of occupied units in flood prone areas. This area has approximately 17 abandoned mines, which reportedly have some deep vertical shafts. The Newby main shaft, 4.5 miles southwest of Asheboro, is about 100 feet deep and extends for over 200 feet. Other shafts depths are not known but most of these mines are abandoned gold mines with underground workings. Most of this area is designated as a rural growth management area and will not be developed.

There are 165 occupied units in floodplains with 431 persons exposed. Occupied units are valued at an estimated $12,000,000. Three high hazard dams are located along Toms Creek:

- Upper Toms Creek Nursery Dam
- Middle Toms Creek Nursery Dam
- Lower Toms Creek Nursery Dam

Municipalities

City of Asheboro:

Asheboro has a moderate amount of occupied units in flood plains areas. Sixteen of the 23 extremely hazardous substance facilities as identified by the NC Division of Emergency Management are located within Asheboro, most are located in north Asheboro.

There are two abandoned mines in Asheboro area. The exact location of these mines is unknown. The Scarlet mine is located approximately 2.4 miles north of Asheboro, in the town of Balfour. The mineshafts depths are 60 foot to 120 foot long and extend over 500 feet.

Approximately 852 persons in 333 occupied housing units are exposed to flood hazard throughout the city of Asheboro. The structures are valued at around $25,600,000.

The geographic area census block group 304001 is of primary concern with 7.7% of occupied housing units within the SFHA, numerous EHS facilities (two are located within flood plain and watershed area) high population density, vulnerable populations, as well as one abandoned gold mine in the area. This is developed municipal area with an estimated 100 occupied housing units, including mobile homes, in the SFHA exposing over 177 persons to a flood hazard. The approximate value of the structures in the flood plain is $6,189,180.00.
G geographic planning area map to be inserted; multiple hazards: flood, EHA in watersheds, vulnerable populations]

Another area of primary concern is the Pennwood Branch floodplain running through geographic planning area 303021. This area has a highly vulnerable population and public housing in this area is located within the floodplain.

Geographic Planning Area vulnerability assessment
Hazard: Flood; vulnerable populations (public housing occupants)
Planning Area: Asheboro 2
Pennwood Branch Floodplain- census block group area 303021 (Dunlap street; Vance; Pennwood; Brewer; Meadowbrook)

Type of development	# of existing buildings	Current value	Current # of people	Projected # of buildings	Projected value	Projected # of people
Single family residential	15	$581,230.00	38	15	$581,230.00	38
Multifamily residential	6	$453,760.00	15	6	$453,760.00	15
Commercial	2	$143,290.00	Unknown	2	$143,290.00	Unknown
Other	14 Public housing units	$837,720.00	42+	14 Public housing units	$837,720.00	42+
Subtotal	27	$2,016,000.00	95+	27	$2,016,000.00	95+

Geographic Planning Area vulnerability assessment
Hazard: Flood; Town government building
Planning Area: Asheboro 3
Pennwood Branch Floodplain- census block group area 302013 (Glenwood; Maple Ave; E Kivett; Silver Ave)

Type of development	# of existing buildings	Current value	Current # of people	Projected # of buildings	Projected value	Projected # of people
Single family residential	16	$1,188,780.00	40	16	$1,188,780.00	40
Multifamily residential	4 duplex	$453,760.00	10	4 duplex	$453,760.00	10
Other	1 Town govt. building	unknown	unknown	1 Town govt. building	unknown	unknown
Subtotal	21	$1,642,540.00	50+	21	$1,642,540.00	50+

Archdale and ETJ

The City of Archdale has numerous occupied units in flood plains areas making it highly vulnerable to flooding. Archdale has over 213 occupied housing units located in a flood plain with approximately 503 persons exposed to flood hazards.

Muddy Creek floodplain in census block group area 315022 has approximately 33 structures located in the floodplain. Replacement value for these structures is approximately 4, 616,200.00

Geographic Planning Area vulnerability assessment
Hazard: Flood
Planning Area: Archdale 1
Muddy Creek Floodplain- northern branch, census block group area 315022 (Dogwood Lane; Aldridge Lane, Hope Valley; Huff Road)

Type of development	# of existing buildings	Current value	Current # of people	Projected # of buildings	Projected value	Projected # of people
Single family residential	35	$4,616,200	Approx. 87	No new dev. Planned	same	same
Multifamily	-	-	-	-	-	-
Commercial	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Other	-	-	-	-	-	-
Subtotal	35	$4,616,200	Approx. 87	35	$4,616,200	Approx. 87

Muddy Creek floodplain running through census block group area 315023 has approximately 33 structures in the floodplain at a value of $10,131,560.00.

Geographic Planning Area vulnerability assessment
Hazard: Flood
Planning Area: Archdale 2
Muddy Creek Floodplain- running through census block group area 315023 (Macon Road; Cheyenne Dr; Barrett Drive; Balfour Dr)

Type of development	# of existing buildings	Current value	Current # of people	Projected # of buildings	Projected value	Projected # of people
Single family residential	27	$1,911,120	67	No new dev. planned	same	same
Commercial	-		-	-	-	-
Industrial	3	$2,913,620		3	$2,913,620	
Other	3 (office)	$5,306,820		3 (office)	$5,306,820	
Subtotal	33	$10,131,560		33	$10,131,560	

Muddy Creek Floodplain running through census block group area of 316021 has 19 single-family residential structures and 3-multi unit housing at a value of $1.78 million.

Geographic Planning Area vulnerability assessment
Hazard: Flood
Planning Area: Archdale 3
Muddy Creek Floodplain- running through census block group area 316021 (Meredith Dr; Cloverdale Dr; Lake Dr; Archdale BLVD; Terrace Trace Ct; Corrina Cir; Rosemary St)

Type of development	# of existing buildings	Current value	Current # of people	Projected # of buildings	Projected value	Projected # of people
Single family residential	19	$1,780,000.00	48	19	$1,780,000.00	48
Multifamily	3	$1,253,670.00	50	3	$1,253,670.00	50
Commercial	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Other	-	-	-	-	-	-
Subtotal	21	$2,328,940.00	98	21	$2,328,940.00	98

Geographic Planning Area vulnerability assessment
Hazard: Flood
Planning Area: Archdale 4
Muddy Creek Floodplain- running through census block group area 315032 (504-6Balfour Dr; Archdale Road; West Brook Ct)

Type of development	# of existing buildings	Current value	Current # of people	Projected # of buildings	Projected value	Projected # of people
Single family residential	4 SFH 3 mobile homes	$270,700 value not listed	17	38 (31 structures in new development)	Unknown at this time	95
Multifamily residential	-	-	-	-	-	-
Commercial	-		-	-	-	-
Industrial						
Other						
Subtotal	4 SFH 3 mobile homes	$270,700 value not listed	17	38 (31 is new development)	Unknown at this time	95

Estimate value of all existing structures within Archdale city limits, which are located in a flood plain, is $17,760,700.00. No critical facilities, government buildings or schools are located within the flood plains and it does not appear that emergency access is compromised due to road flooding. However, one extremely hazardous substance facilities is located in a watershed balance area affecting the Deep River, Randleman Lake watershed.

Franklinville and ETJ

Franklinville is highly vulnerable to floods and dam failure would likely severely impact the town. While there is no critical facility located in a flood plain, government buildings (town hall) and the fire station in the city of Franklinville is located between flood zones that could result in blocked road access east and west main street and compromise response times in the event of an emergency. Rose Street is the only alternative route.

Geographic Planning Area vulnerability assessment
Hazard: Flood, Randolph Mill Earth Dam (high hazard)
Planning Area: Franklinville
Deep River Floodplain- running through census block group area 311003 (West Main Street; Lindley Street; Cedar Falls Road)

Type of development	# of existing buildings	Current value	Current # of people (est.)	Projected # of buildings	Projected value	Projected # of people
Single family residential	10 SFH 1 mobile home	$330,610.00 unknown	25 3	10 SFH 1 mobile home	$330,610.00 unknown	25 3
Multifamily residential	-	-	-	-	-	-
Commercial	2	$189,140.00	4+	2	$189,140.00	4+
Industrial	-	-		-	-	
Other	1 Town of Franklinville auto service garage	$59,390.00		1 Town of Franklinville auto service garage	$59,390.00	
Subtotal	14	$579,140.00	32+	14	$579,140.00	32+

Additionally, mobile home parks and individual mobile homes are located in the SFHA (Ogles Creek Road and on Faith Rock Road south of E main.)

The Randolph Mill Earthen Dam is in need of maintenance; the last inspection report states that there is seepage, several areas of sliding, and the dam face is very wet.

Geographic Planning Area vulnerability assessment
Hazard: Flood, Randolph Mill Earth Dam (high hazard)
Planning Area: Franklinville
Deep River Floodplain- running through census block group area 311004 (Ogles Creek Road; Faith Rock Road; Andrew Hunter Road)

Type of development	# of existing buildings	Current value	Current # of people (est.)	Projected # of buildings	Projected value	Projected # of people
Single family residential	16 mobile homes 3 SFH	$1,092,730.00 + $123,490.00	40	16 mobile homes 3 SFH	$1,092,730.00 + $123,490.00	40
Multifamily residential	-	-	-	-	-	-
Commercial	3	$113,430.00	Unknown	3	$113,430.00	Unknown
Industrial	-	-	-	-	-	-
Other	1 unknown exempt	$93,160.00	unknown	1 unknown exempt	$93,160.00	unknown
Subtotal	23	$1,422,840	40+	23	$1,422,840	40+

The Ramseur Water Supply Dam is located within the SFHA which increases the risk of dam failure. Reportedly, there is a transverse crack in the concrete on the upstream and downstream face of the dam. A crack monitor has been placed to check movement. Dam Safety officials have recommended repairs be made on a depression near the left top abutment (no record of repair completed). Ramseur filtration plant is 1000 feet downstream; the new Ramseur filtration plant is 2700 feet downstream. Also at risk are US 64, numerous dwellings, buildings, roads and utilities downstream.

Geographic Planning Area: **Franklinville**
Hazard: **Flood, Sandy Creek Floodplain**

Type of development	# of existing buildings	Current value	Current # of people (est.)	Projected # of buildings	Projected value	Projected # of people
Single family residential	5	$304,830.00	12+	5	$304,830.00	12+
Multifamily residential	-	-	-	-	-	-
Commercial	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Other	Ramseur Waste Water Treatment Plant	Unknown		Ramseur Waste Water Treatment Plant	Unknown	
Highway	impact on NC HWY 22/ and East Main	Unknown		impact on NC HWY 22/ and East Main	Unknown	
Subtotal	6	$304,830.00+	12+	6	$304,830.00+	12+

Franklinville is just within the 50-mile "Ingestion Exposure Pathway Zone" of Shearon Harris Power Plant which means that the main radiation exposure in the event of a nuclear disaster is from ingestion of contaminated water, fish or other aquatic foods, as well as milk and fresh vegetables. US 64 would be the likely evacuation route.

Liberty and ETJ

The Town of Liberty has one structure located within an SFHA. The town is within 50 miles of Shearon Harris Power Plant and evacuations would likely be via US 64.

Ramseur and ETJ

Ramseur is vulnerable to floods and Ramseur Water Supply Dam failure would severely impact the town since this is the main water supply. Over forty-seven occupied housing units are in a flood plain with at least 119 persons exposed to flood hazards. The structures are valued at an estimated $3,313,410. Some mobile home parks are located in or very close to flood zones. No government buildings or critical facilities are exposed.

The town of Ramseur borders an area with a moderate incidence of landslides although the likelihood of a landslide event is low.

Ramseur water is supplied by Sandy Creek Reservoir, and Ramseur Water Supply Dam. Ramseur Water Supply Dam is located within the SFHA which increases the risk of dam failure. Reportedly, there is a transverse crack in the concrete on the upstream and downstream face of the dam. A crack monitor has been placed to check movement. Dam Safety officials have recommended repairs be made on a depression near the left top abutment (no record of repair completed). Ramseur filtration plant is 1000 feet downstream; the new Ramseur filtration plant is 2700 feet downstream. Also at risk are parts of Franklinville, US 64, numerous dwellings, buildings, roads and utilities downstream.

Geographic Planning Area: **Ramseur/Franklinville**
Hazard: **Flood, Sandy Creek Floodplain**

Type of development	# of existing buildings	Current value	Current # of people (est.)	Projected # of buildings	Projected value	Projected # of people
Single family residential	5	$304,830.00	12+	5	$304,830.00	12+
Multifamily residential	-	-	-	-	-	-
Commercial	-	-	-	-	-	-
Industrial	-	-	-	-	-	-
Other	Ramseur Waste Water Treatment Plant	Unknown		Ramseur Waste Water Treatment Plant	Unknown	
Highway	impact on NC HWY 22/ and East Main	Unknown		impact on NC HWY 22/ and East Main	Unknown	
Subtotal	6	$304,830.00+	12+	6	$304,830.00+	12+

Geographic Planning Area: **Ramseur Water Supply Dam**
Hazard: **Dam Failure**
CURRENT CONDITIONS

Type of development	Number of existing private buildings	Current value	Current number of people
Single-family residential	17	$1,495,020.00	42.5
Multi-family residential	0	$0.00	0
Commercial	0	$0.00	0
Industrial	0	$0.00	0
Other	0	$0.00	0
Subtotal	**17**	**$1,495,020.00**	**42.5**
Sewage treatment plant	0	$0.00	0
Water treatment plant	2	$2,152,492.00	5
Subtotal	**2**	**$2,152,492.00**	**5**
TOTAL:	***19***	***$3,647,512.00***	***47.5***

Geographic Planning Area: **Randolph Mill Earth Dam**
Hazard: **Dam Failure**
CURRENT CONDITIONS

Type of development	Number of existing private buildings	Current value	Current number of people
Single-family residential	23	$1,229,420.00	57.5
Multi-family residential	0	$0.00	0
Commercial	8	$977,590.00	20
Industrial	2	$115,390.00	5
Other	0	$0.00	0
Subtotal	**33**	**$2,322,400.00**	**82.5**
Public buildings or facilities	0	0	0
Subtotal	**0**	**$0.00**	**0**
TOTAL:	***33***	***$2,322,400.00***	***82.5***

Ramseur is within 50-mile "Ingestion Exposure Pathway Zone" of Shearon Harris Power Plant which means that the main radiation exposure in the event of a nuclear disaster is from ingestion of contaminated water, fish or other aquatic foods, as well as milk and fresh vegetables. US 64 would be the likely evacuation route.

Randleman and ETJ

Randleman is vulnerable to flood hazards. While there is no critical facility located within the SFHA, there are approximately 30 occupied housing units valued at over $2,000,000 in the SFHA. An estimated 73 persons are exposed to flood hazards. The most critical area will be the homes and development downstream of the new Randleman Dam. One extremely hazardous substance facility is located within the Uwharrie/Lake Reese Watershed balance area, and another extremely hazardous substance facility within the Deep River/ Randleman Lake watershed balance area. In addition, the location of the middle school, high school, and emergency shelter will be in or near the Randleman lake flood zone which may result in compromised road access.

Though Randleman Lake is not filled, dam construction is completed. There are reported cracks in the dam in unexpected areas. Emergency Plans have not been developed and are not required until the dam is filled in 2005. Downstream development would be catastrophically

impacted if the dam failed. Though the proposed lake area is known and mapped, floodplains surrounding the lake area have not been determined. The buffer area around the lake is to be 200 feet. The hazard mitigation plan will need to be revised and updated as more becomes known about the condition of the dam and as the project moves forward.

In addition, water is supplied to Randleman by Polecat Creek Reservoir and Randleman City Lake Dam located east of the town. This high hazard dam is located within the SFHA which increases the likelihood or possibility of dam failure. Dam safety officials report seepage on abutments and wetness at the base of the dam with cracks on both sides and holes on right side. SR 2134 and houses are downstream. Dam failure would result in loss of water supply, would fail Worthville dam, and cause considerable property damage.

Geographic Planning Area: Randleman City Lake Dam

Hazard Dam Failure

CURRENT CONDITIONS

Type of development	Number of existing private buildings	Current value	Current number of people
Single-family residential	15	$1,633,450.00	37.5
Multi-family residential	0	$0.00	0
Commercial	1	$90,450.00	2.5
Industrial	0	$0.00	0
Other	0	$0.00	0
Subtotal	**16**	**$1,723,900.00**	**40**
Sewage treatment plant	0	0	0
Water treatment plant	0	0	0
Hospital	0	0	0
Schools	0	0	0
Infrastructure	0	0	0
Police station	0	0	0
Fire station	0	0	0
Hazardous material facilities	0	0	0
Government offices	0	0	0
Public shelter	0	0	0
Subtotal	**0**	**$0.00**	**0**
TOTAL:	***16***	***$1,723,900.00***	***40***

Seagrove

Seagrove has no hazard risk areas associated with its geography.

Staley

Staley is within 50 miles of Shearon Harris Power Plant and evacuations would likely be via US 64. There is one abandoned gold mine on the north border of Staley. It exact location, its depth and extent of underground workings is unknown.

Trinity and ETJ

Trinity has a high flood risk for southwest Trinity. All totaled, Trinity has over 691 people exposed to flood hazards in 256 occupied units in the SFHA at an estimated value of $22,929,000. In addition, there is one EHS facility located in the Uwharrie/Lake Reese watershed balance area, and three high hazard dams located in the area.

Geographic Planning Area: Trinity 1
Hazard: Flood, Little Uwharrie River Floodplain- running through census block group area 315011 (Steeplegate Dr; Red Fox Road; Carriage House Cir) Lansdowne Pl; Chapsworth Dr; Belmont Dr)

Type of development	# of existing buildings	Current value	Current # of people (est.)	Projected # of buildings	Projected value	Projected # of people
Single family residential	16	$3,716,500.00	40	16	$3,716,500.00	40
Other	-	-	-	-	-	-
Subtotal	16	$3,716,500.00	40	16	$3,716,500.00	40

Geographic Planning Area vulnerability assessment
Hazard: Flood
Planning Area: Trinity 2
Uwharrie River Floodplain- running through census block group area 315011 (Red Fox Rd; Carriage House Cir; Rock Dam Ct; Meadowbrook Dr)

Type of development	# of existing buildings	Current value	Current # of people (est.)	Projected # of buildings	Projected value	Projected # of people
Single family residential	11 SFH 2 mobile homes	$1,184,280.00 value unknown	26 5	11 SFH 2 mobile homes	$1,184,280.00 value unknown	26 5
Commercial	1	$561,690.00	Unknown	1	$561,690.00	Unknown
Other	-	-	-	-	-	-
Subtotal	14	$1,745,970.00	31+	14	$1,745,970.00	31+

Geographic Planning Area vulnerability assessment
Hazard: Flood
Planning Area: Trinity 3
Uwharrie River Floodplain- running through census block group area 316013 (Kington Rd; Briarcliff; Meadowbrook View Rd)

Type of development	# of existing buildings	Current value	Current # of people (est.)	Projected # of buildings	Projected value	Projected # of people
Single family residential	9	$750,840.00	22	9	$750,840.00	22
Other	-	-	-	-	-	-
Subtotal	9	$750,840.00	22	9	$750,840.00	22

APPENDIX C
LOCAL GOVERNMENT LEGAL AUTHORITY IN NORTH CAROLINA

North Carolina legislation has empowered Randolph County to adopt and implement policies and ordinances that can mitigate the impact of natural hazards. This authority gives the county and its municipalities the power to regulate, tax, acquire property in hazardous areas, tax, and financially support hazard mitigation practices.

Mitigation is sustained action that reduces or eliminates long-term risk to people and property from impacts of natural hazards or disasters. Any action taken before, during or after a disaster event that makes structures, buildings, and communities resilient and minimizes the impact on the affected population community built environment and businesses can be a mitigating activity.

Mitigation tools are designed to reduce risk, share risk, or eliminate risk. Risk reduction refers to activities that reduce the impact of natural hazards and involves either structural (building or creating control structures) or non-structural measures (activities which modify vulnerability or exposure). Risk sharing involves using financial instruments to spread the cost of the disaster event and moderate financial losses to business, individuals and community through insurance, tax incentives, and relief payments. Risk elimination seeks to avoid exposure to natural hazards by steering development to less vulnerable areas.

Regulation

General Police Power: All **l**ocal governments in North Carolina have been granted broad regulatory powers through the North Carolina General Statutes (NCGS.) General police power empowers local government to enforce ordinances which define, prohibit, regulate, or abate acts, omissions, or conditions detrimental to the health, safety, and welfare of the people, and to define and abate nuisances (including public health nuisances).

Hazard mitigation activities are designed to protect the health, safety and welfare of the public and as such, counties and its municipalities may require hazard mitigation activities and strategies in their local ordinances.

The power to abate “nuisances,” could include, by local definition, any activity or condition making people or property more vulnerable to any hazard (NCGS 160A Art. 8 (Delegation and Exercise of the General Police Power to Cities and Towns); 153A, Art. 6 (Delegation and Exercise of the General Police Power to Counties)).

Building Codes and Building Inspection*:* Counties and municipalities can engage in risk reduction activities directed at strengthening building codes and requiring retrofits on existing structures and facilities (including private residences and business facilities), to protect the integrity of buildings and other structures in the event of a natural hazard.

North Carolina has a statewide compulsory building code (NCGS 143-138(c)). However, municipalities and counties may adopt stronger building codes for their respective areas if approved by the state as providing “adequate minimum standards” (NCGS 143-138(e)). Local regulations cannot be less restrictive than the state code. Exempted from the state code are: public utility facilities other than buildings; liquefied petroleum gas and liquid fertilizer installations; and farm buildings outside municipal jurisdictions. A state permit is not required for structures under $20,000. (Note that exemptions apply only to state, not local permits.)

Local governments in North Carolina are also empowered to carry out building inspections (NCGS 160A, Art. 19. Part 5; and 153A Art. 18, Part 4), and empowers counties and their municipalities to create an inspection department, enumerates its duties and responsibilities, including enforcement of state and local laws relating to the construction of buildings, installation of plumbing, electrical, heating systems, building maintenance; and other matters.

Local governments may:

- Set building codes standards
- Enforce building codes
- Conduct ongoing building inspections to ensure structural integrity
- Require building strengthening and retrofits to withstand winds and absorb the force of movement
- Require safe construction practices such as securing buildings, mobile homes and manufactured units to a foundation, and using appropriate fasteners to connect the roof to the structure.

Land Use Controls: Land use controls are effective risk elimination strategies. Local government can control the use of land through various land use regulatory powers giving local control over the amount, density, quality, and location of new development. Land use regulatory power includes the power to engage in planning, enact and enforce zoning ordinances, floodplain ordinances, storm water management ordinances, watershed ordinances, and subdivision controls.

Zoning: Zoning is the most basic tool available to control the use of land. NC General Statutes give broad enabling authority for counties and municipalities in North Carolina to use zoning as a planning tool (NCGS 160A-381; and for counties in NCGS 153A-340). Counties may also regulate inside municipal jurisdiction at the request of a municipality (NCGS 160A-360(d)).

Land "uses" controlled by zoning includes the type of use (e.g., residential, commercial, industrial) as well as minimum specifications for use (e.g., lot size, building height, set backs, density). Local government is authorized to divide its territorial jurisdiction into districts, and to regulate and restrict the erection, construction, reconstruction, alteration, repair or use of buildings, structures, or land within those districts (NCGS 160A-382). Districts may include general use districts, overlay districts, and special use or conditional use districts.

Zoning ordinances consist of maps and written text and have the force of law behind them.

Comprehensive or Master Planning: In order to exercise the regulatory powers related to land use conferred by the General Statutes, local governments in North Carolina are required to create or designate a planning agency (NCGS 160A-3 87). The planning agency may: make studies of an area; determine objectives; prepare and adopt plans for achieving objectives; develop and recommend policies, ordinances, and administrative means to implement plans; and perform other related duties (NCGS 160A-361).

NCGS 160A-383, requires that zoning regulations be made in accordance with a comprehensive plan. While the ordinance itself may provide evidence that zoning is being conducted "in accordance with a plan," the existence of a separate comprehensive

planning document ensures that the government is developing regulations and ordinances that are consistent with the overall goals of the community.

Subdivision Regulation: Subdivision regulations control the division of land into parcels for the purpose of building development or sale. Subdivision is defined as all divisions of a tract or parcel of land into two or more lots and all divisions involving a new street. (NCGS 160A-376). The definition of subdivision does not include the division of land into parcels greater than ten acres where no street right-of-way dedication is involved (NCGS 160A-376(2)).

Flood-related subdivision controls typically require installation of adequate drainage facilities, and design water and sewer systems to minimize flood damage and contamination. Generally, subdivision regulations require that subdivision plans be approved prior to the sale of land. Subdivision regulation is limited in its ability to directly affect the type of use made of land or minimum specifications for structures. Broad subdivision control enabling authority for municipalities is granted through NCGS 160-371, and in 153-330 for counties and municipal extraterritorial areas.

Floodplain Regulation: The "Act to Prevent Inappropriate Development in the One Hundred-Year Floodplain and to Reduce Flood Hazards" passed by the state of North Carolina to regulate development within floodways (NCGS 143-214.51-214.61) is a risk reduction or risk elimination tool depending on local government use. The act is designed to minimize the extent of floods by preventing obstructions that inhibit water flow and increase flood height and damage. In addition, such regulation will prevent and minimize loss of life, injuries, property damage, and other losses in flood hazard areas.

This statute authorizes counties and municipalities to adopt a flood hazard prevention ordinance to regulate uses in flood hazard areas and to grant permits for the use of flood hazard areas that are consistent with the requirements of the statute. The statute establishes minimum standards for local ordinances and provides for variances for prohibited uses such as:

(a) A flood hazard prevention ordinance adopted by a county or city pursuant to this part shall, at a minimum:
    1. Meet the requirements for participation in the National Flood Insurance Program and of this section.
    2. Prohibit new solid waste disposal facilities, hazardous waste management facilities, salvage yards, and chemical storage facilities in the 100-year floodplain except as noted in section (b) below.
    3. Provide that a structure or tank for chemical or fuel storage incidental to a use that is allowed under this section or to the operation of a water treatment plant or wastewater treatment facility may be located in a 100-year floodplain only if the structure or tank is either elevated above base flood elevation or designed to be watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydro dynamic loads and the effects of buoyancy.

(b) A flood hazard prevention ordinance may include a procedure for granting variances for uses prohibited under G.S. 143-215.54

(c) A county or municipality shall notify the Secretary (of Crime Control and Public Safety) of its intention to grant a variance at least 30 days prior to granting the variance. A variance may be granted upon finding that all of the following apply:
    (1) The use serves a critical need in the community.

(2) No feasible location exists for the location of the use outside the 100-year floodplain.
(3) The lowest floor of any structure is elevated above the base-flood elevation or is designed to be watertight with walls substantially impermeable to the passage of water and with structural components capable of resisting hydrostatic and hydrodynamic loads and the effects of buoyancy.
(4) The use complies with all other applicable laws and regulations.

Enforcement

Local government enforcement of existing ordinances, building codes, and local plans is critical to effective mitigation

Acquisition

Local governments can eliminate risk through their power to acquire a piece of property or area (either in fee or a lesser interest, such as an easement), and remove the property from the private marketplace thereby eliminating or reducing the possibility of inappropriate development. North Carolina legislation empowers cities, towns, and counties to acquire property for public purpose by gift, grant, devise, bequest, exchange, purchase, lease, or eminent domain (NCGS 153A. Art. 8; 160A. Art. 11).

Taxation

As a risk reduction strategy, local governments may set preferential tax rates for areas unsuitable for development (e.g., agricultural land, wetlands), thereby discouraging development in hazardous areas. As a risk sharing strategy, local government may also levy special assessments on property owners for all or part of the costs of acquiring, constructing, reconstructing, extending or otherwise building or improving flood and hurricane protection works within a designated area (NCGS 160A-238.)

Expenditure

The North Carolina General Assembly has given local governments the power to make expenditures in the public interest. By including hazard mitigation principles as a routine consideration in all spending decisions (annual budgets, capital improvement plans) local governments can effectively steer future development and growth and mitigate the impacts of natural hazards.

FUNDING SOURCES

In the State of North Carolina, property taxes provide the primary source of revenue for counties. These taxes primarily finance critical services available and delivered on a daily basis, such as schools, health and social services, planning, solid waste management, and emergency service, leaving little for funding of special projects such as hazard mitigation activities.

Government Funding

Some state and federal funds area available to local governments for the development and implementation of hazard mitigation programs.

Federal Funding:

- **The Hazard Mitigation Grant Program (HMGP).** A post-disaster declaration funding provided for under the Stafford Act. The HMGP is funded by the Federal government and administered by the State HMGP funds can be used for acquisition or relocation, retrofitting, development of local mitigation standards and comprehensive mitigation planning, structural hazard control and the purchase of equipment to improve preparedness and response.

- **Pre Disaster Mitigation Program Grants (PDM).** The PDM Program provides funding to States and communities for cost-effective hazard mitigation activities. The PDM Program was authorized by §203 of the Robert T. Stafford Disaster Assistance and Emergency Relief Act (Stafford Act), 42 USC, as amended by §102 of the Disaster Mitigation Act of 2000 (DMA). FEMA provides PDM grants to States that, in turn, provide sub-grants to local governments for mitigation activities such as planning and the implementation of projects identified through the evaluation of natural and man-made hazards.

- **Flood Mitigation Assistance Programs.** The Flood Mitigation Grant Program (FMAP) is a federally funded program for mitigation assistance to states, communities and individuals to reduce or eliminate the long-term risk of flood damage to the built environment and real property. Unlike the HMGP, FMAP is available to eligible communities on an annual basis. An eligible community must be a participant in the National Flood Insurance Program and must develop a flood mitigation plan. FMAP funds may be used for elevation and/or dry flood proofing of structures, acquisition of real property, relocation or demolition of structures, and other minor structural projects

- **National Flood Insurance Program.** Federal risk-sharing program. In order to participate communities must adopt and enforce floodplain management ordinances to reduce future losses.

- **Buy out programs.** Programs which seek to buy back floodplains, relocate residents, and demolish structures in order to eliminate or reduce payouts for recurring flood damage.

- **Earthquake Hazard Reduction Grants** – for states with moderate or high risk of seismic activity.

- **Community Development Block Grants**. The Community Development Block Grant (CDBG) is designed to assist communities in rehabilitating substandard dwelling structures and to expand economic opportunities, primarily for low-to-moderate-income families. In addition, as a result of a Presidential declared disaster, CDBG funds may be used for long-term needs such as acquisition, reconstruction, and redevelopment of disaster-affected areas.

Small Business Administration (SBA) Pre-Disaster Mitigation Loan Program: The purpose of the Pre-Disaster Mitigation Loan Program is to make low-interest; fixed-rate loans to eligible small businesses for the purpose of implementing mitigation measures to protect business property from damage that may be caused by future disasters. The program is a pilot program, which supports the Federal Emergency Management Agency (FEMA) Pre-Disaster Mitigation Program.

Alternate funding options in support of Open Space Management (includes state and federal fund sources): See Appendix C
This document, from the North Carolina Division of Emergency Management online library, provides a detailed summary, including alternate funding options and contact information for open space management. *URL: http://www.ncem.org/mitigation/Library/options_open_space.pdf*

State Funding:

- **Uniform Relocation Act**: Tenants who must relocate as a result of acquisition of their housing are entitled to URA relocation benefits (such as moving expenses, replacement housing rental payments, and relocation assistance advisory services), regardless of the owner's voluntary participation

- **Ability to Pay:** In recognition of the disparate economic prosperity of the State's one hundred counties, the North Carolina Department of Commerce ranks counties in an economic tier system. The impetus for this system was the William S. Lee Quality Jobs and Business Expansion Act of 1996 which provides for a sliding scale of state tax credits for economic investment. The Lee Act has become the state's main development tool in an effort to help smaller rural counties become economically competitive. The most economically distressed counties are ranked in Tier 1 and the most economically prosperous in Tier 5. The rankings are evaluated annually using three factors –

  (1) population growth,
  (2) unemployment rate, and
  (3) per capita income.

  The 2003 County Tier Designation places Randolph County in Tier 4. The tier ranking is widely used by the State as a measure of an individual county's ability to pay when applying for state and federal grants.

Non-Government Funding

Funding from non-governmental sources for mitigation efforts is possible through the contribution of non-governmental organizations, such as churches, charities, community relief funds, the Red Cross, hospitals, for-profit businesses, and nonprofit organizations (e.g., nature conservancy, land trust organizations).

TECHNICAL ASSISTANCE

State and Federal Technical Assistance

Agencies such as the Federal Emergency Management Association (FEMA) and the North Carolina Division of Emergency Management (NCDEM) have made available numerous implementation manuals and other resource documents. These manuals provide information on mitigation techniques for various hazards, including hurricanes, floods, wildfires, tornadoes and earthquakes and include technical information on engineering principles, construction methods, costs and suggestions for how techniques can be financed and implemented. Federal agencies such as the U.S. Army Corps of Engineers and Soil Conservation Service also provide similar services.

Statewide Floodplain Mapping Initiative: The State of North Carolina, through the Federal Emergency Management Agency's Cooperating Technical Community partnership initiative, has been designated as a Cooperating Technical State (CTS). As a CTS, the State will assume primary ownership and responsibility for Flood Insurance Rate Maps (FIRMs) for all North Carolina communities. This project will include conducting flood hazard analysis and producing updated, digital FIRMs (DFIRMs).

Regional Technical Assistance

Piedmont Triad Council of Governments:
The Piedmont Triad Council of Governments (PTCOG) is a voluntary association of local governments - urban and rural - authorized by state law in part, to provide management, planning and technical services to local governments. PTCOG services include: preparing multi-jurisdictional hazard mitigation plans; preparing land use plans, zoning ordinances, and annexation studies; producing GIS maps (geographic information system) to support a variety of planning activities; and by providing planning and training for county emergency medical services staffs.

County and Municipal Capability:

This municipal and county capability assessment identifies and evaluates existing systems, plans, documents related to hazard mitigation. Randolph County and all municipalities within the county will create a process to incorporate its floodplain ordinance, subdivision ordinance and zoning activities into this and future revisions of the hazard mitigation plan. For this and future multi-jurisdictional hazard mitigation plan development or revision, all local planning documents, such as land development plans, comprehensive plans, and capital improvement plans, are to be provided to the hazard mitigation planning team by the Planning Director. The Planning Director will ensure that all goals and strategies of the hazard mitigation plan are consistent with existing planning documents.

Randolph County Capability:

Yes	In progress	No	Randolph County Capability: Plans, Policies, Ordinances and Regulations in place	Comments
X			**Zoning**	Countywide. Unified Development Ordinance effective since 1987. Article X: Sign Regulation: regulates size and placement of signs in zoning districts Article XI: Non Conformance: May change non-conforming use of structure to conforming use; cannot be changed to another non-conforming use; non-conforming use shall not be extended or enlarged. If non-conforming use is discontinued for one year any future use shall be limited to uses permitted in that district. • Non conforming Structures: may not be enlarged or altered in a way which increases non conformity • Should a structure be moved for any reason, for any distance, it shall thereafter conform to the regulations of the district it is located in. • For any structure on a non conforming lot, a structure containing a nonconforming use or a non conforming structure: ordinary repairs or repair or replacement of non bearing walls, fixtures, wring or plumbing not to exceed ten percent of current replacement value of building • Should a building or structure be destroyed by any means to an extent of more than 50% of its replacement cost or bulk, exclusive of foundations and land value, it shall not be reconstructed except in conformity with ordinance
X			**Comprehensive Land Use Planning**	Randolph county's zoning ordinances are predicated on the Unified Development Plan in effect since 1987. Establishes growth management areas and controls development density, preserving rural nature of county.
X			**Watershed Protection Program**	Watershed and Critical Areas of existing and proposed watersheds have been protected since 1987. Critical Area: Allows single-family residential development at a max of one dwelling unit per two acres. All other residential and non-residential development shall be allowed at a max of 6% built upon area. Prohibited uses: • Storage of toxic, hazardous materials unless

Yes	In progress	No	Randolph County Capability: Plans, Policies, Ordinances and Regulations in place	Comments
				spill containment plan is implemented • No new underground fuel or chemical storage tanks, • Sites for land application of sludge/residuals, or petroleum contaminated soils • Commercial uses that sell store or distribute motor fuels or other hazard materials • Manufacture, use, or store a hazardous or toxic materials waste as listed on the EPA hazardous material list or determined by Randolph County Board of Commissioners. Balance Areas: Prohibited uses: • Discharging landfills and: • Storage of toxic, hazardous materials unless spill containment plan is implemented
	X		**Storm Water Management**	County programs involving expanded storm water management continues to evolve as part of smart environmental programming.
X			**National Flood Insurance Program**	**Member**
X			**Floodplain Ordinance:**	Randolph County land use programs restrict or prohibit certain types of development within designated flood plains and regulate the construction of barriers that might increase flood hazards to other lands. **Article V: Provisions for flood hazard reduction** • New construction and substantial improvements shall be anchored to prevent flotation collapse or lateral movement • New construction and substantial improvements must be constructed with material and utility equipment resistant to flood damage • Use of methods and practices to minimize flood damage • HVAC, plumbing and other service facilities shall be designed or located to prevent water from entering or accumulating during a flood • Water/sewer systems shall be designed to minimize or eliminate infiltration of floodwaters. • Non conformance: Nothing in this ordinance shall prevent the repair, reconstruction or replacement of a building or structure existing on the effective date of this Ordinance and located totally or partially within the floodway zone, provided that the bulk of the building or structure below base flood elevation in the Floodway Zone is not increased and provided that such repair or reconstruction or replacement meets all other requirements. Section B: Specific standards are outlined • Structures, including basement must be no lower than two feet above base flood elevation • Manufactured Homes: if incurred "substantial damage" as result of a flood, must be elevated on a permanent foundation such that the lowest floor of manufactured home is elevated no lower than two feet above the base flood

Yes	In progress	No	Randolph County Capability: Plans, Policies, Ordinances and Regulations in place	Comments
				elevation • Must be anchored to prevent flotation, collapse or lateral movement. • An evacuation plan must be developed for evacuation of all residents of a new, substantially improved or substantially damaged manufactured home park or subdivision located with flood prone areas.
X			**Subdivision Regulations**	**Article VI: Gives general requirements and minimum standards of design;** **Section 8: water and sewer facilities serving lots** **Section 9: addresses easements** **Section 11: water course or dry branch running through or within 150 feet of property proposed for subdivision, prospective subdivider shall furnish reasonable evidence that residential lots within the subdivision will not be flooded, and lots located in floodplains shall not be sold for residential purposes.** **Section 15: mobile homes: must be attached to the ground after removal of wheels and axles by permanent masonry material or manufactures unified vinyl enclosure** **Roof pitch of 2.2 feet for every 12 feet** **Meet or exceed mobile home construction standard of the US Department of Housing and Urban Development.** **Article VII: Section 4: Required improvements f) Erosion control. Subdivider shall mulch, seed, sod or protect all grading, excavations, open cuts, side slopes and other land surface disturbances. Must comply with NC Sedimentation and Pollution Control Act.**
X			**Drought Management Policies**	
X			**Emergency Response Plan**	**Will be updated soon.**
			Tree preservation program	
X			**Stream Buffer ordinance**	In subdivision ordinance Article VI: section 12: 50 foot buffer of vegetation on both sides of stream to slow rapid water runoff and soil erosions. Streets, roadways, railroads, and driveways are permitted in stream buffer but must cross buffer as near to perpendicular as possible.
X			**GIS Capability**	The GIS system provides detailed data on property ownership, land use type, location (as well as whether the structure is located within the 100 year floodplain), value of land and structures. Randolph County GIS also has data on land use within the municipalities although this data is not as extensive as for county property.
X			**Permitting System:**	Centralized and computerized system for issuing all land development permits enhances the capability of the County to accurately track and monitor development occurring in the county.
X			**Well Protection Program:**	The program has rules governing the construction and abandonment of private well water supplies

Yes	In progress	No	Randolph County Capability: Plans, Policies, Ordinances and Regulations in place	Comments
X			**Randolph County Watershed Interlocal Agreements**	The County Planning Director is authorized by the state to administer state-mandated watershed regulations within a municipality that makes such a request of Randolph County by resolution. Agreements are with: Liberty, Franklinville, Staley and Seagrove.

Archdale Capability:

Yes	In progress	No	Archdale Capabilities: Plans, Policies, Ordinances and Regulations in place	Comments:
X			Zoning	Article III 3.5: Open Space requirements Section 3.18: Class C Mobile Homes Prohibited Special Requirements to permitted and special uses SR5: Mobile Home Parks: • Unlawful to locate a mobile home on any lot within the zoning jurisdiction of Archdale except in a mobile home park that has receive Special Use approval. • Every Mobile home shall be underpinned with a material of a permanent nature, such as masonry, but does not include wood framing • Every mobile home shall be tied down to a concrete foundation or footing to resist overturning in the event of high winds. • Mobile home parks shall be located on ground no susceptible to flooding and graded to prevent water from ponding or accumulating. Where storm drainage pipes are located in adjacent streets, underground drainage facilities with connections to the storm drainage system shall be provided for the mobile home park. Article XI: Non Conforming Situations: cannot increase non-conforming use of building or structure. • Degree of activity (volume, intensity or frequency of use) may change but no change in kind and no violations of other paragraphs of this section are allowed • Minor repairs are allowed: major renovation between 10% and not more than 50% of taxed value of the structure may be done. Work costing more than 50% of taxed value of the structure is not allowed singularly or cumulatively within any five-year period. • Nothing shall prevent the maintenance, repair, and extension of a single family dwelling that is non-conforming as to use.
X			Land Use Development Plan	Did not review.
X			Watershed Protection Program	Article 300: Critical Area: Allows single-family residential development at a max of one dwelling unit per two acres. All other residential and non-residential development shall be allowed at a max of 6% built upon area. Prohibited uses: • Storage of toxic, hazardous materials unless spill containment plan is implemented • No new underground fuel or chemical storage tanks, • Sites for land application of sludge/residuals, or petroleum contaminated soils • Commercial uses that sell store or distribute motor fuels or other hazard materials • Manufacture, use, or store a hazardous or toxic materials waste as listed on the EPA hazardous material list or determined by Randolph County Board of Commissioners.

Yes	In progress	No	Archdale Capabilities: Plans, Policies, Ordinances and Regulations in place	Comments:
				Balance Areas: Prohibited uses: • Discharging landfills and: • Storage of toxic, hazardous materials unless spill containment plan is implemented
			Storm Water Management	Phase II community: storm water management mandatory and in progress;
			National Flood Insurance Program participant	Member
X			Floodplain Ordinance:	Article V: Provisions for flood hazard reduction • New construction and substantial improvements shall be anchored to prevent flotation collapse or lateral movement • New construction and substantial improvements must be constructed with material and utility equipment resistant to flood damage • Use of methods and practices to minimize flood damage • HVAC, plumbing and other service facilities shall be designed or located to prevent water from entering or accumulating during a flood • Water/sewer systems shall be designed to minimize or eliminate infiltration of floodwaters. • Non conformance: Nothing in this ordinance shall prevent the repair, reconstruction or replacement of a building or structure existing on the effective date of this Ordinance and located totally or partially within the floodway zone, provided that the bulk of the building or structure below base flood elevation in the Floodway Zone is not increased and provided that such repair or reconstruction or replacement meets all other requirements. Section B: Specific standards are outlined • Structures, including basement must be no lower than two feet above base flood elevation • Manufactured Homes: if incurred "substantial damage" as result of a flood, must be elevated on a permanent foundation such that the lowest floor of manufactured home is elevated no lower than two feet above the base flood elevation • Must be anchored to prevent flotation, collapse or lateral movement. An evacuation plan must be developed for evacuation of all residents of a new, substantially improved or substantially damaged manufactured home park or subdivision located with flood prone areas
X			Subdivision Regulations	Required open space for subdivisions Section 1-6 Opens space requirements: active and passive open space designations, greenways, greenbelts and dimensional limitations.

Yes	In progress	No	Archdale Capabilities: Plans, Policies, Ordinances and Regulations in place	Comments:
		X	Drought Management Policies	
X			Emergency Response Plan	Administered through watershed ordinance
		X	Tree preservation program	
X			Stream Buffer ordinance	Section 304 Watershed Protection Ordinance: Lake Reece Watershed: minim of one hundred foot vegetative buffer for new development exceeding low density option, otherwise minimum 50 foot vegetative buffer. Randleman Lake watershed: minimum 50 foot riparian buffer for all new development activities required on all sides of surface waters in Randleman Lake Watershed.
X			GIS Capability	Arc View 3.3
X			Randolph County Watershed Interlocal Agreements	

Asheboro government capabilities

Yes	In progress	No	Asheboro Capabilities: Plans, Policies, Ordinances, Regulations	Comments
X			Zoning	Article 100: General Regulations: Section 112: Non-conforming may continue: Single-family dwellings may be built on any lot which was recorded prior to the ordinance. Article 800: Non Conforming Situations: • May not engage in any activity that causes an increase in the extent of nonconformity in a nonconforming situation • Volume, intensity or frequency of use of property where a non-conforming situation exists may increase and equipment or processes maybe changed if these changes relate to degree of activity rather than changes in kind. • May not physical alter structures or place new structure on open land if it increases the total amount of space devoted to non-conforming use. • Minor repairs and routine maintenance allowed. Except for single family residential structures (including mobile homes0 if the estimated costs of revocation work exceeds 10% of appraised value of the structure, the work requires a special Use Permit. • Any structure used for single family residential purposes and maintained as a nonconforming use may be replaced with a similar structure of a larger size (i.e., single wide mobile home may be replaced with "double wide". • A nonconforming structure may be reconstructed or replaces if partially or totally destroyed so long as the total amount of space devoted to nonconforming use may not be increased, except that a larger single-family residential structure may be constructed in place of a smaller one.
X			Land use Development Plan	Yes
X			Watershed Protection Program	Article 300B: Watershed Protection Regulations Critical Area: Allows single-family residential development at a max of one dwelling unit per two acres. All other residential and non-residential development shall be allowed at a max of 6% built upon area. Prohibited uses: • Storage of toxic, hazardous materials unless spill containment plan is implemented • No new underground fuel or chemical storage tanks, • Sites for land application of sludge/residuals, or petroleum contaminated soils • Commercial uses that sell store or distribute motor fuels or other hazard materials • Manufacture, use, or store a hazardous or toxic materials waste as listed on the EPA hazardous material list or determined by Randolph County Board of Commissioners. Balance Areas: Prohibited uses: • Discharging landfills and: • Storage of toxic, hazardous materials unless spill containment plan is implemented
		X	Storm Water Management	
X			National Flood Insurance Program	Member
X			Floodplain Ordinance:	Flood Damage Prevention Ordinance

Yes	In progress	No	Asheboro Capabilities: Plans, Policies, Ordinances, Regulations	Comments
				Article 705: Provisions for flood hazard reduction • New construction and substantial improvements shall be anchored to prevent flotation collapse or lateral movement • New construction and substantial improvements must be constructed with material and utility equipment resistant to flood damage • Use of methods and practices to minimize flood damage • HVAC, plumbing and other service facilities shall be designed or located to prevent water from entering or accumulating during a flood • Water/sewer systems shall be designed to minimize or eliminate infiltration of floodwaters. • Non conformance: Nothing in this ordinance shall prevent the repair, reconstruction or replacement of a building or structure existing on the effective date of this Ordinance and located totally or partially within the floodway zone, provided that the bulk of the building or structure below base flood elevation in the Floodway Zone is not increased and provided that such repair or reconstruction or replacement meets all other requirements. 705.2 Specific standards are outlined • Structures, including basement must be no lower than two feet above base flood elevation • Manufactured Homes: if incurred "substantial damage" as result of a flood, must be elevated on a permanent foundation such that the lowest floor of manufactured home is elevated no lower than two feet above the base flood elevation • Must be anchored to prevent flotation, collapse or lateral movement. • An evacuation plan must be developed for evacuation of all residents of a new, substantially improved or substantially damaged manufactured home park or subdivision located with flood prone areas.
X			Subdivision Regulations	
X			Drought Management Policies	Water conservation plan not reviewed
X			Emergency Response Plan	Not reviewed
		X	Tree preservation program	
X			Stream Buffer ordinance	As part of watershed protection ordinance: 100' around reservoirs; 50' on both sides of perennial streams.
X			**GIS Capability**	Also utilizes Randolph County information
X			Randolph County Watershed Interlocal Agreements	

***Randleman**:* Randleman: planning and zoning department, NFIP, flood plain management. Fire department field patrol. GIS capability, not fully functional yet.

Yes	In progress	No	Randleman Capability: Plans, Policies, Ordinances and Regulations in place	
X			Zoning	Includes "floodplain district," and "watershed overlay district." Requires manufactured houses to be tied down in accordance with provisions of state of NC regulations for Manufactured Mobile Homes, 1989
X			Land Development Plan	
X			Watershed Protection Program	
		X	Storm Water Management	Minimal reference to storm drainage in subdivision ordinance. Amount of impervious surface not addressed.
X			National Flood Insurance Program	Member
X			Floodplain Ordinance:	Chapter 18, Art. II: Flood Damage Prevention act. Includes "service facilities (HVAC, Etc.) Elevated or designed to prevent water from entering." Non-residential buildings may be built with certificate form professional engineer that non-residential structure is flood proofed. Anchoring or mobile/modular homes required to prevent flotation required.
X			Subdivision Regulations	Mobile manufactured home; Non conforming use: if occupied non conforming use is destroyed to an extent of more than 60% of assessed value, the building may not be restored for nonconforming use. Flood control ordinance is within subdivision ordinance.
		X	Drought Management Policies	
			Emergency Response Plan	Not reviewed
		X	Tree preservation program	Subdivision ordinance: tree planting not required; but service to be expected.
X			Stream Buffer ordinance	30' buffer for development required along perennial streams
	X		GIS Capability	
X			Randolph County Watershed Interlocal Agreements	

Ramseur:

	In progress	No	Ordinances and Regulations	
X			Zoning	
X			Land Development Plan	March 2003.
		X	Watershed Protection Program	
		X	Storm Water Management	
		X	National Flood Insurance Program	
		X	Floodplain Ordinance:	
X			Subdivision Regulations	Section VII: Use Manufactured Home Park, Site development and Parking: Manufactured homes shall be properly staked. Sect. XII, 3 Nonconforming uses: If SFH substantially damaged, may rebuild SFH so long as nonconformity is not increased.
		X	Drought Management Policies	
			Emergency Response Plan	Not reviewed.
		X	Tree preservation program	
X			Stream Buffer ordinance	Subdivision ordinance have recently been revised to include regulations to require 50 foot vegetated buffer strips along both sides of all perennial streams within new subdivisions to reduce storm runoff and protect water quality
		X	GIS Capability	
X			Randolph County Watershed Interlocal Agreements	

Liberty

Liberty does not have a planning department or employ a planner. The town of liberty has three major ordinances that regulate the development of land: the zoning ordinance, subdivision regulations, and watershed ordinance. The watershed regulations are included within the zoning ordinance and limit the development density of land in an effort to reduce the degradation of drinking water supplies.

Yes	In Progress	No	Capability: Plans, Policies, Ordinances and Regulations in place	
X			Zoning	
X			Land Development Plan	
X			Watershed Protection Program	
		X	Storm Water Management	
		X	National Flood Insurance Program	Town will participate once State/FEMA complete DFIRMS.
		X	Floodplain Ordinance:	
X			Subdivision Regulations	
X			Drought Management Policies	The town has a water shortage response ordinance. It was utilized during last year's drought.
	X		Emergency Response Plan	Expect to have a plan in place by the end of the summer. Draft Ordinance is complete and is undergoing staff review.
		X	Tree preservation program	
X			Stream Buffer ordinance	Included as part of the Watershed Protection Ordinance.
		X	GIS Capability	
X			Permitting System:	The town does issue Zoning Compliance Permits as part of the Zoning Ordinance.
	X		Well Protection Program:	The town and NCRWA are in the final stages of permitting a wellhead protection plan.
		X	Randolph County Watershed Interlocal Agreements	

Franklinville

Yes	In Progress	No	Capability: Plans, Policies, Ordinances and Regulations in place	
X			Zoning	
X			Land Development Plan	
X			Watershed Protection Program	
		X	Storm Water Management	
		X	National Flood Insurance Program	
		X	Floodplain Ordinance:	
X			Subdivision Regulations	
		X	Drought Management Policies	
		X	Emergency Response Plan	
		X	Tree preservation program	
X			Stream Buffer ordinance	
		X	GIS Capability	
			Permitting System:	
			Well Protection Program:	
X			Randolph County Watershed Interlocal Agreements	

Seagrove

Yes	In Progress	No	Capability: Plans, Policies, Ordinances and Regulations in place	
		X	Zoning	
		X	Land Development Plan	
		X	Watershed Protection Program	
		X	Storm Water Management	
		X	National Flood Insurance Program	
		X	Floodplain Ordinance:	
		X	Subdivision Regulations	
		X	Drought Management Policies	
		X	Emergency Response Plan	
		X	Tree preservation program	
		X	Stream Buffer ordinance	
		X	GIS Capability	
		X	Permitting System:	
		X	Well Protection Program:	
		X	Randolph County Watershed Interlocal Agreements	

Staley

Yes	In Progress	No	Capability: Plans, Policies, Ordinances and Regulations in place	
		X	Zoning	
		X	Land Development Plan	
		X	Watershed Protection Program	
		X	Storm Water Management	
		X	National Flood Insurance Program	
		X	Floodplain Ordinance:	
		X	Subdivision Regulations	
		X	Drought Management Policies	
		X	Emergency Response Plan	
		X	Tree preservation program	
		X	Stream Buffer ordinance	
		X	GIS Capability	
		X	Permitting System:	
		X	Well Protection Program:	
		X	Randolph County Watershed Interlocal Agreements	

Trinity Capability:

Yes	In Progress	No	Trinity Capability: Plans, Policies, Ordinances and Regulations in place	
		X	Zoning	
		X	Land Development Plan	
X			Watershed Protection Program	Critical Area: Allows single-family residential development at a max of one dwelling unit per two acres. All other residential and non-residential development shall be allowed at a max of 6% built upon area. Prohibited uses: • Storage of toxic, hazardous materials unless spill containment plan is implemented • No new underground fuel or chemical storage tanks, • Sites for land application of sludge/residuals, or petroleum contaminated soils • Commercial uses that sell store or distribute motor fuels or other hazard materials • Manufacture, use, or store a hazardous or toxic materials waste as listed on the EPA hazardous material list or determined by Randolph County Board of Commissioners. Balance Areas: Prohibited uses: • Discharging landfills and: • Storage of toxic, hazardous materials unless spill containment plan is implemented
		X	Storm Water Management	Phase II community: Must comply with EPA mandate to address storm water drainage
		X	National Flood Insurance Program	Section 15: Mobile home must be attached to the ground either by use of permanent masonry material or by use of manufacturers unified vinyl enclosure. Minimum roof pitch of 2.2 feet for every 12 feet. Mobile home construction must meet or exceed standards of US Department of Housing and Urban Development
		X	Floodplain Ordinance:	
X			Subdivision Regulations	
		X	Drought Management Policies	
		X	Emergency Response Plan	
		X	Tree preservation program	
X			Stream Buffer ordinance	
		X	GIS Capability	
		X	**Permitting System:**	
		X	**Well Protection Program**	
		X	**Randolph County Watershed Interlocal Agreements**	

Footnotes
C-1Local Hazard Mitigation Planning Manual, North Carolina Division of Emergency Management, 1998, Appendix B, pp. 61 – 64.

APPENDIX D

Randolph County Multi jurisdictional Hazard Mitigation Plan
Evaluation and Monitoring

Part I. Flood mitigation monitoring

Jurisdiction	# of new structures built in floodplain	Percent increase or decrease in floodplain development	Percent Increase/decrease in flood insurance policies in force	Flood damage information recorded and mapped for jurisdiction	# structures in SFHA damaged from flood event /Damage cost estimate	# structures flood damaged outside of SFHA /Damage cost estimate	# of Repetitive Damage Structures	Latest flood prevention ordinance adopted?	NFIP Member	Based on new knowledge of actual occurrence of flood events and damage, recommend further review of plan and revise or amend as necessary .
County										
Archdale										
Asheboro										
Franklinville										
Liberty										
Ramseur										
Randleman										
Seagrove										
Staley										
Trinity										
Total:										

Comments and Recommendations:

Randolph County Multi jurisdictional Hazard Mitigation Plan
Evaluation and Monitoring

Part 2: Other Hazards

	Number of wind damaged structures damaged	Average cost of damage	Generators needed	Generators procured	Problems or Considerations:
County					
Archdale,					
Asheboro					
Franklinville					
Liberty					
Ramseur					
Randleman					
Seagrove					
Staley					
Trinity					
Totals					

% increase in # of high hazard dams (HHd)	
% of HHd Emergency Plans on file with County EM	
% increase in # of Intermediate hazard dams	
% increase in # of low hazard dams	

Has there been progress toward attainment of the Hazard Mitigation goals of the Strategy? Yes No

Randolph County Multi jurisdictional Hazard Mitigation Plan Evaluation and Monitoring
Part 3: Conclusions and Recommendations
Summary of Findings:
Recommendations:

This is a monitoring tool to analyze the progress Randolph County and its municipalities have made in implementing hazard mitigation strategies to protect property and persons from the impacts of Natural Hazards.

This evaluation will be sent to each Jurisdiction for use and consideration in their annual review of municipal hazard mitigation plans.

This evaluation was conducted by _____ Date_____

APPENDIX G
Structures in Flood Plains

List on the following pages provides information on type of structure, address of structure, building value, property value, location (district), and stream name for all of Randolph County.

Codes

District: identifies structure location

0	Unincorporated
1	Asheboro
2	Archdale
3	Franklinville
4	Liberty
5	Ramseur
6	Randleman
7	Seagrove
8	Staley
9	High Point
10	Thomasville
11	Trinity

Land use codes: Identifies type of structure

108	mobile home
100	residential vacant
101	sf residential
102	duplex
103	triplex
109	aux. building
112	agricultural improved
113	vacant agricultural
110	single wide real estate
300s	commercial /retail/ manufacturing
400s	commercial /retail/ manufacturing
694	Piedmont Triad Water Authority
213	mobile home park
697	town or city government owned building
608	Public Housing

STRDR_	NUM	NAME	ZIP	BGROUP	FLO	STREAM_NAM	PIN	BLDGVAL	STREAM	DIST	LANDUSE
T72245	5090	JORDAN VALLEY RD	27370	305011	A	305011_Little Caraway Creek_	7714824373	300	Little Caraway Creek	0	108
T61187	6964	RIVERCHASE DR	27360	305011	A	305011_Little Uwharrie River_A	6784937885	67560	Little Uwharrie River	0	108
T640939	5581	STONEY RIVER DR	27370	305011	A	305011_Little Uwharrie River_A	7703446719	58560	Little Uwharrie River	0	101
B639971	1542	FULLER MILL RD N	27360	305011	A	305011_Little Uwharrie River_A	6794603185	0	Little Uwharrie River	0	100
P61615	1653	FULLER MILL RD N	27360	305011	A	305011_Little Uwharrie River_A	6794608936	16960	Little Uwharrie River	0	101
T63713	5976	SNYDER CTRY RD	27370	305011	A	305011_Uwharrie River_A	7704440022	112040	Uwharrie River	0	101
P56514	1147	INDIAN CREEK DR	27370	305011	A	305011_Uwharrie River_A	7703677375	72510	Uwharrie River	0	101
T56518	1150	INDIAN CREEK DR	27370	305011	A	305011_Uwharrie River_A	7703771352	0	Uwharrie River	0	108
P646508	1083	THAYER RD	27370	305011	A	305011_Uwharrie River_A	7703663814	0	Uwharrie River	0	101
T56528	1260	VICKREY DR	27370	305011	A	305011_Uwharrie River_A	7703785067	0	Uwharrie River	0	108
T63725	5966	SNYDER CTRY RD	27370	305011	A	305011_Uwharrie River_A	7704441316	0	Uwharrie River	0	108
P63717	5944	SNYDER CTRY RD	27370	305011	A	305011_Uwharrie River_A	7704443556	5000	Uwharrie River	0	108
P36366	3164	OLD LEXINGTON RD	27205	305012	A	305012_Back Creek_A	7742146628	31580	Back Creek	0	697
P27905	1562	PINEVIEW RD	27317	305012	A	305012_Back Creek_A	7753085461	103230	Back Creek	0	101
T50532	491	JARVIS MILLER RD	27205	305012	A	305012_Caraway Creek_A	7722142792	0	Caraway Creek	0	100
P49455	1062	JERICO RD	27205	305012	A	305012_Caraway Creek_A	7722486584	136250	Caraway Creek	0	101
T38312	2344	PLOTT HOUND TRL	27350	305012	A	305012_Caraway Creek_A	7733690978	4280	Caraway Creek	0	108
P38328	2761	APACHE TRL	27350	305012	A	305012_Caraway Creek_A	7734261453	36830	Caraway Creek	0	101
T36011	3041	SHAWNEE TRL	27350	305012	A	305012_Caraway Creek_A	7734372259	18000	Caraway Creek	0	101
T636912	671	RIDGES MTN RD	27205	305013	A	305013_Caraway Creek_A	7721363206	15990	Caraway Creek	0	108
P31467	1034	E RIVER RUN EXT	27205	305021	A	305021_Cedar Fork Creek_A	7742108917	87040	Cedar Fork Creek	0	101
P50960	3457	STUTTS RD	27205	306001	A	306001_Back Creek_A	7721806604	67990	Back Creek	0	101
T624071	4812	OLD NC HWY 49	27205	306001	A	306001_Caraway Creek_A	7710804964	0	Caraway Creek	0	112
P54621	3590	GOLDEN MEADOW RD	27205	306001	A	306001_Caraway Creek_A	7720142111	24070	Caraway Creek	0	101
P629950	1387	MCDANIEL DR	27205	306001	A	306001_Taylors Creek_A	7639499907	215990	Taylors Creek	0	101
P57446	1413	RICHARDS CIR	27205	306001	A	306001_Taylors Creek_A	7730404332	127680	Taylors Creek	0	101
P44222	2002	BAILEY RD	27205	306002	A	306002_Little River_A	7648852350	45200	Little River	0	101
P44226	1965	BAILEY RD	27205	306003	A	306003_Little River_A	7648852787	58470	Little River	0	101
P44224	1969	BAILEY RD	27205	306003	A	306003_Little River_A	7648856707	32680	Little River	0	101
P49338	4492	LASSITER MILL RD	27205	307001	A	307001_Betty McGees Creek_	7617583212	103320	Betty McGees Creek	0	101
P55752	4983	OLD NC HWY 49	27205	307001	A	307001_Caraway Creek_A	7619892258	2000	Caraway Creek	0	112
P604183	5488	NC HWY 49 S	27205	307001	A	307001_Toms Creek_A	7608873618	22310	Toms Creek	0	101
P601860	6540	NC HWY 47	27239	307002	A	307002_South Fork Second Cr	6697182701	0	South Fork Second Creek	0	113
T42378	4514	RIVER ESTATES DR	27205	307003	A	307003_Little River_A	7646923810	7870	Little River	0	108
P624617	4515	WINDRIVER RD	27205	307003	A	307003_Little River_A	7646835288	57030	Little River	0	101
T42417	1387	FOXBURROW RD	27205	307003	A	307003_Little River_A	7656030765	48440	Little River	0	101
P47444	1453	HOWARD AUMAN RD	27205	307003	A	307003_Little River_A	7656041544	24470	Little River	0	101
T608773	1426	BUCK FORD RD	27205	307003	A	307003_Little River_A	7646945950	14880	Little River	0	110
P47450	1460	HOWARD AUMAN RD	27205	307003	A	307003_Little River_A	7656050480	95280	Little River	0	101
T646110	1166	FOGGY MTN RD	27205	307003	A	307003_Little River_A	7647837308	54760	Little River	0	101
P46541	1042	FOGGY MTN RD	27205	307003	A	307003_Little River_A	7647943839	38800	Little River	0	109
P46613	3744	PISGAH COVERED BRIDGE RD	27205	307003	A	307003_Little River_A	7647650662	66220	Little River	0	101
V49389	6727	LASSITER MILL RD	27371	307003	A	307003_Mill Creek_A	7615281422	29790	Mill Creek	0	398
T47114	1887	BURNEY RD	27205	307003	A	307003_Reed Creek_A	7655187542	17880	Reed Creek	0	110
P47387	6252	PISGAH RD	27205	307003	A	307003_West Fork Little River_	7644261348	55210	West Fork Little River	0	101
P22867	949	IRON MOUNTAIN VIEW RD	27205	308012	A4	308012_Mill Creek_A4	7781609851	100030	Mill Creek	0	101
T628906	3449	INDIGO TRL	27205	308012	A4	308012_Mill Creek_A4	7791116223	1500	Mill Creek	0	108
T636543	1223	FOXFIRE RD	27205	308012	A4	308012_Mill Creek_A4	7791017523	79230	Mill Creek	0	101
P22849	884	IRON MOUNTAIN VIEW RD	27205	308012	A4	308012_Mill Creek_A4	7781515286	1780	Mill Creek	0	108

T10296	3671	KINDLEY FARM RD EXT	27205	308012	A4	308012_Mill Creek_A4	7791432335	6770	Mill Creek	0	109
T9560	3673	KINDLEY FARM RD EXT	27205	308012	A4	308012_Mill Creek_A4	7791432335	6770	Mill Creek	0	109
P601043	1444	TWIN CREEK RD	27205	308021	A3	308021_Richland Creek_A3	7669814820	186220	Richland Creek	0	101
P43574	1445	TWIN CREEK RD	27205	308021	A3	308021_Richland Creek_A3	7669824100	120150	Richland Creek	0	101
P43578	1360	TWIN CREEK RD	27205	308021	A3	308021_Tantraugh Branch_A3	7669724075	150620	Tantraugh Branch	0	101
P632793	9128	ERECT RD	27341	308022	A4	308022_Fork Creek_A4	8604882517	74620	Fork Creek	0	101
P2424	4475	BROWER MILL RD	27341	308022	A4	308022_Fork Creek_A4	8604874667	25370	Fork Creek	0	101
P600264	2347	FORK CREEK MILL RD	27341	308022	A4	308022_Fork Creek_A4	7685475043	93260	Fork Creek	0	101
P600266	2375	FORK CREEK MILL RD	27341	308022	A4	308022_Fork Creek_A4	7685475043	93260	Fork Creek	0	101
V6604	6547	CLYDE KING RD	27341	308022	A4	308022_Fork Creek_A4	7685192412	51860	Fork Creek	0	101
P1239	3545	DEEP RIVER CHURCH RD	27316	309001	A4	309001_DEEP RIVER_A4	8619500798	224920	DEEP RIVER	0	101
P4482	1046	NC HWY 22 S	27316	309001	A4	309001_Reed Creek_A4	8711080173	64680	Reed Creek	0	101
P3677	5850	ERECT RD	27341	309001	A4	309001_Richland Creek_A4	8607753520	98520	Richland Creek	0	101
P3679	5846	ERECT RD	27341	309001	A4	309001_Richland Creek_A4	8607755734	123380	Richland Creek	0	101
P3694	5635	ERECT RD	27316	309001	A4	309001_Tibbs Run_A4	8607872708	169630	Tibbs Run	0	112
P9996	5011	NC HWY 22 42	27316	309002	A4	309002_DEEP RIVER_A4	8618776857	52630	DEEP RIVER	0	101
V6432	5007	NC HWY 22 42	27316	309002	A4	309002_DEEP RIVER_A4	8618776857	52630	DEEP RIVER	0	101
P6437	4951	NC HWY 22 42	27316	309002	A4	309002_DEEP RIVER_A4	8618782263	135000	DEEP RIVER	0	101
P6447	8884	NC HWY 42 S	27316	309002	A4	309002_DEEP RIVER_A4	8618689491	46560	DEEP RIVER	0	373
P6439	4930	NC HWY 22 42	27316	309002	A4	309002_DEEP RIVER_A4	8618870142	99110	DEEP RIVER	0	401
P605505	8042	ANTIOCH CHURCH RD	27341	309003	A4	309003_DEEP RIVER_A4	8625386141	17020	DEEP RIVER	0	101
P644205	1806	LAND ESTATES DR	27355	310001	A4	310001_Mount Pleasnat Creek	8724075101	147450	Mount Pleasnat Creek	0	101
V15584	2431	SANDY LAKE DR	27248	310001	A4	310001_Sandy Creek_A4	8704278349	8400	Sandy Creek	0	101
V15583	2405	SANDY LAKE DR	27248	310001	A4	310001_Sandy Creek_A4	8704276209	500	Sandy Creek	0	109
V15556	4313	KIDDS MILL RD	27248	310001	A4	310001_Sandy Creek_A4	8704260433	25520	Sandy Creek	0	101
P17175	2443	SANDY LAKE DR	27248	310001	A4	310001_Sandy Creek_A4	8704372120	0	Sandy Creek	0	108
P7810	8303	US HWY 64 E	27316	310002	A4	310002_Reed Creek_A4	8712789515	113950	Reed Creek	0	101
P8413	1070	DEAD END LN	27355	310003	A	310003_Brush Creek_A	8733368034	110740	Brush Creek	0	101
P4486	1055	NC HWY 22 S	27316	310004	A4	310004_Reed Creek_A4	8711082285	62570	Reed Creek	0	101
T624583	1627	WORTHVILLE RD	27317	311001	A	311001_DEEP RIVER_A	7764987307	132970	DEEP RIVER	0	101
T26623	1629	WORTHVILLE RD	27317	311001	A	311001_Polecat Creek_A	7764987307	132970	Polecat Creek	0	101
T635339	1333	NEVIT LN	27248	311002	A4	311002_Bush Creek_A4	7783707683	72840	Bush Creek	0	101
P20775	2423	WHITES MEMORIAL RD	27248	311002	A4	311002_Bush Creek_A4	7784418294	135640	Bush Creek	0	101
T631560	4886	OLD LIBERTY RD	27248	311002	A4	311002_Bush Creek_A4	7784994101	49010	Bush Creek	0	101
P19323	2478	CEDAR FALLS RD	27248	311004	A4	311004_DEEP RIVER_A4	7782482659	2907330	DEEP RIVER	0	467
P23912	2305	CEDAR FALLS RD	27248	311004	A4	311004_DEEP RIVER_A4	7782390199	16590	DEEP RIVER	0	373
P19305	1227	WICKER LOVELL RD	27317	311005	A4	311005_DEEP RIVER_A4	7782196737	7890	DEEP RIVER	0	101
P19297	1120	WICKER LOVELL RD	27317	311005	A4	311005_DEEP RIVER_A4	7782291334	198490	DEEP RIVER	0	401
T646094	1034	GLENN RICH LN	27317	311005	A4	311005_DEEP RIVER_A4	7782082345	72000	DEEP RIVER	0	101
P23550	1187	JAMES RAY DR	27317	311005	A4	311005_DEEP RIVER_A4	7782096537	34490	DEEP RIVER	0	332
P19307	1192	JAMES RAY DR	27317	311005	A4	311005_DEEP RIVER_A4	7782098502	12180	DEEP RIVER	0	101
P19299	1203	WICKER LOVELL RD	27317	311005	A4	311005_DEEP RIVER_A4	7782199623	7810	DEEP RIVER	0	101
P19301	1209	WICKER LOVELL RD	27317	311005	A4	311005_DEEP RIVER_A4	7782198665	10810	DEEP RIVER	0	101
P19303	1215	WICKER LOVELL RD	27317	311005	A4	311005_DEEP RIVER_A4	7782198607	2250	DEEP RIVER	0	101
P604395	1265	WICKER LOVELL RD	27317	311005	A4	311005_DEEP RIVER_A4	7782190363	30030	DEEP RIVER	0	109
P605356	1215	FRANKLIN DR	27317	311005	A4	311005_DEEP RIVER_A4	7773617519	18940	DEEP RIVER	0	109
P21655	1248	LITTLE POINT RD	27317	311005	A4	311005_DEEP RIVER_A4	7773129549	88190	DEEP RIVER	0	101
T630223	6041	STARMOUNT RD	27298	312001	A4	312001_Dodsons Lake_A4	8717312809	12050	Dodsons Lake	0	108
P500049	5990	STARMOUNT RD	27298	312001	A4	312001_Dodsons Lake_A4	8717257655	1310	Dodsons Lake	0	309
P10536	7174	RICHLAND CHURCH RD	27298	312001	A	312001_South Prong Stinking (	8738315519	52700	South Prong Stinking Quar	0	101

P600147	7196	RICHLAND CHURCH RD	27298	312001	A	312001_South Prong Stinking (	8738315519	52700	South Prong Stinking Quar	0	101
P12224	8536	OLD LIBERTY RD	27298	312002	A4	312002_Sandy Creek_A4	8716330320	56350	Sandy Creek	0	101
P33324	4401	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726458907	127540	Caraway Creek	0	101
P33326	4013	CREEKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726469215	104710	Caraway Creek	0	101
P33316	4047	CREEKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726466326	111250	Caraway Creek	0	101
P33419	4507	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726560378	109280	Caraway Creek	0	101
P33421	4523	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726561427	102720	Caraway Creek	0	101
P33320	4113	CREEKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726464423	111760	Caraway Creek	0	101
P33423	4533	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726561575	104370	Caraway Creek	0	101
P36594	4123	CREEKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726463429	130900	Caraway Creek	0	101
P33425	4537	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726562614	100390	Caraway Creek	0	101
P608715	4611	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726562744	149780	Caraway Creek	0	101
P38360	4631	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726562984	117380	Caraway Creek	0	101
P38362	4641	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726572093	120390	Caraway Creek	0	101
P38364	4649	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726573103	139220	Caraway Creek	0	101
P609941	4667	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726573213	137120	Caraway Creek	0	101
P33477	3881	RIVERVIEW CT	27370	313011	A	313011_Caraway Creek_A	7726571206	112400	Caraway Creek	0	101
P612400	4671	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726573335	119570	Caraway Creek	0	101
P620549	3878	RIVERVIEW CT	27370	313011	A	313011_Caraway Creek_A	7726570480	124230	Caraway Creek	0	101
P38366	4687	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726573458	142040	Caraway Creek	0	101
P33707	3871	VILLAGE DR	27370	313011	A	313011_Caraway Creek_A	7726479645	93170	Caraway Creek	0	101
P640360	4723	OAKVIEW DR	27370	313011	A	313011_Caraway Creek_A	7726574801	157590	Caraway Creek	0	101
P38380	3797	WOOD VILLAGE DR	27370	313011	A	313011_Caraway Creek_A	7726582407	180050	Caraway Creek	0	101
P38378	3796	WOOD VILLAGE DR	27370	313011	A	313011_Caraway Creek_A	7726582679	321670	Caraway Creek	0	101
P500140	931	STEED RD	27317	313011	A	313011_DEEP RIVER_A	7757095640	108420	DEEP RIVER	0	101
P29370	1456	COOK CTRY DR	27317	313011	A	313011_DEEP RIVER_A	7748652441	112150	DEEP RIVER	0	101
P29168	5964	BRANSON DAVIS RD	27350	313011	A	313011_Muddy Creek_A	7746597245	66690	Muddy Creek	0	101
T29815	6616	CEDAR SQUARE RD	27263	313011	A	313011_Muddy Creek_A	7747135810	0	Muddy Creek	0	694
T29817	6620	CEDAR SQUARE RD	27263	313011	A	313011_Muddy Creek_A	7747135810	0	Muddy Creek	0	694
M62701	6044	POOLE RD	27263	313011	A	313011_Muddy Creek_A	7728905382	190620	Muddy Creek	0	213
T38884	3600	GREY DR	27350	313012	A	313012_Caraway Creek_A	7725579764	72320	Caraway Creek	0	101
P33071	3706	GREY DR	27350	313012	A	313012_Caraway Creek_A	7725583260	68110	Caraway Creek	0	101
P33060	3749	CLOVER DR	27350	313012	A	313012_Caraway Creek_A	7725585480	99880	Caraway Creek	0	101
P603206	3763	CLOVER DR	27350	313012	A	313012_Caraway Creek_A	7725584606	102670	Caraway Creek	0	101
P33062	3791	CLOVER DR	27350	313012	A	313012_Caraway Creek_A	7725582904	78790	Caraway Creek	0	101
P33064	3831	CLOVER DR	27350	313012	A	313012_Caraway Creek_A	7725591304	61320	Caraway Creek	0	101
P38872	4406	OLD MARLBORO RD	27350	313012	A	313012_Caraway Creek_A	7725590797	112730	Caraway Creek	0	101
T641551	5738	PONDEROSA RD	27317	313022	A	313022_Polecat Creek_A	7777143306	96560	Polecat Creek	0	101
P18747	5815	PONDEROSA RD	27317	313022	A	313022_Polecat Creek_A	7777055183	74800	Polecat Creek	0	101
P623238	5868	PONDEROSA RD	27317	313022	A	313022_Polecat Creek_A	7777151472	173890	Polecat Creek	0	101
T604609	4963	IRVIN CTRY RD	27317	313023	A	313023_Little Polecat Creek_A	7776473675	169530	Little Polecat Creek	0	101
P500283	5910	RACINE RD	27317	313023	A	313023_Little Polecat Creek_A	7777636007	146370	Little Polecat Creek	0	101
P16746	5844	HUNTING LODGE RD	27313	313023	A	313023_Little Polecat Creek_A	7787788285	92600	Little Polecat Creek	0	101
T634757	2121	CHEYENNE TRL	27313	313023	A	313023_Little Polecat Creek_A	7787471599	8640	Little Polecat Creek	0	108
P500285	1455	CREEKSIDE DR	27317	313023	A	313023_Little Polecat Creek_A	7777638525	146750	Little Polecat Creek	0	101
P601233	1662	PROVIDENCE CHURCH RD	27313	313023	A	313023_Little Polecat Creek_A	7777747300	125530	Little Polecat Creek	0	101
P605623	1658	PROVIDENCE CHURCH RD	27313	313023	A	313023_Little Polecat Creek_A	7777747300	125530	Little Polecat Creek	0	101
P16715	2478	BETHEL CHURCH RD	27313	313023	A	313023_Little Polecat Creek_A	7787657421	66380	Little Polecat Creek	0	112
T628090	5879	QUAKER DR	27313	313023	A	313023_Little Polecat Creek_A	7787374255	39300	Little Polecat Creek	0	101
P23208	2857	BETHEL CHURCH RD	27233	313023	A	313023_Little Polecat Creek_A	7787879275	113080	Little Polecat Creek	0	101

P16737	5803	HUNTING LODGE RD	27313	313023	A	313023_Little Polecat Creek_A	7787771915	118220	Little Polecat Creek	0	101
T629177	6365	HUNTING LODGE RD	27233	313023	A	313023_Little Polecat Creek_A	7788635292	5020	Little Polecat Creek	0	108
P24557	2401	OLD CLIMAX RD	27313	313023	A	313023_Little Polecat Creek_A	7788355189	27920	Little Polecat Creek	0	101
P17975	1597	BANTAM RD	27313	313023	A	313023_Polecat Creek_A	7778258335	116580	Polecat Creek	0	101
P15554	4275	KIDDS MILL RD	27248	313024	A4	313024_Sandy Creek_A4	8704167680	47150	Sandy Creek	0	101
P21232	4123	CAMP NAWAKA RD EXT	27317	314001	A	314001_Polecat Creek_A	7775062620	0	Polecat Creek	0	100
P21233	4119	CAMP NAWAKA RD EXT	27317	314001	A	314001_Polecat Creek_A	7775061637	18090	Polecat Creek	0	101
T64132	6901	REDDY FOXX LN	27360	315011	A	315011_Little Uwharrie River_A	6795264100	500	Little Uwharrie River	0	108
T64134	6900	REDDY FOXX LN	27360	315011	A	315011_Little Uwharrie River_A	6795264100	500	Little Uwharrie River	0	108
T64130	6903	REDDY FOXX LN	27360	315011	A	315011_Little Uwharrie River_A	6795262072	1000	Little Uwharrie River	0	108
T64128	6915	REDDY FOXX LN	27360	315011	A	315011_Little Uwharrie River_A	6795261088	0	Little Uwharrie River	0	108
T64136	6914	REDDY FOXX LN	27360	315011	A	315011_Little Uwharrie River_A	6795263304	0	Little Uwharrie River	0	108
T64202	2613	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795260483	1000	Little Uwharrie River	0	108
T64164	2634	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795263437	0	Little Uwharrie River	0	108
T64200	2635	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795261622	14040	Little Uwharrie River	0	110
T64166	2636	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795263589	0	Little Uwharrie River	0	108
T64168	2644	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795264780	0	Little Uwharrie River	0	108
T64170	2652	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795264780	0	Little Uwharrie River	0	108
T64172	2666	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795265820	0	Little Uwharrie River	0	108
T64174	2670	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795265887	0	Little Uwharrie River	0	108
T64197	2665	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795263901	0	Little Uwharrie River	0	108
T400402	2677	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795263919	0	Little Uwharrie River	0	101
T64176	2686	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795276005	0	Little Uwharrie River	0	108
T64178	2702	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795276173	0	Little Uwharrie River	0	108
P64180	2708	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795276372	34140	Little Uwharrie River	0	101
T64182	2722	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795277402	0	Little Uwharrie River	0	108
T64184	2734	SHALLOW RIVER DR	27360	315011	A	315011_Little Uwharrie River_A	6795277517	400	Little Uwharrie River	0	108
M64326	2975	OLD MOUNTAIN RD	27370	315011	A	315011_Little Uwharrie River_A	6795398132	9160	Little Uwharrie River	0	213
P622965	6625	LEAH JUSTINE DR	27370	315011	A	315011_Little Uwharrie River_A	6796515925	175270	Little Uwharrie River	0	101
P622874	6629	LEAH JUSTINE DR	27370	315011	A	315011_Little Uwharrie River_A	6796524056	134010	Little Uwharrie River	0	101
P623493	6655	LEAH JUSTINE DR	27370	315011	A	315011_Little Uwharrie River_A	6796522273	143440	Little Uwharrie River	0	101
P622333	6663	LEAH JUSTINE DR	27370	315011	A	315011_Little Uwharrie River_A	6796522314	134120	Little Uwharrie River	0	101
P622335	6671	LEAH JUSTINE DR	27370	315011	A	315011_Little Uwharrie River_A	6796521476	142300	Little Uwharrie River	0	101
P627149	6828	ABIGAIL DR	27370	315011	A	315011_Little Uwharrie River_A	6796520728	158390	Little Uwharrie River	0	101
P632493	6716	ABIGAIL DR	27370	315011	A	315011_Little Uwharrie River_A	6796523815	133430	Little Uwharrie River	0	101
T61818	3382	THAYER RD	27370	315011	A	315011_Uwharrie River_A	7705306153	500	Uwharrie River	0	108
P638990	2544	WILDWOOD RD	27370	315011	A	315011_Uwharrie River_A	7705411952	51510	Uwharrie River	0	101
T642981	2600	WILDWOOD RD	27370	315011	A	315011_Uwharrie River_A	7705422771	0	Uwharrie River	0	108
T36827	3925	MILLERS MILL RD	27370	315011	A	315011_Uwharrie River_A	7715387420	3090	Uwharrie River	0	108
T36829	3911	MILLERS MILL RD	27370	315011	A	315011_Uwharrie River_A	7715387420	3090	Uwharrie River	0	108
T36831	3885	MILLERS MILL RD	27370	315011	A	315011_Uwharrie River_A	7715389869	0	Uwharrie River	0	108
P61915	3752	HABITAT DR	27370	315011	A	315011_Uwharrie River_A	7706642846	21850	Uwharrie River	0	101
T38819	3119	SUMNER RD	27370	315026	A	315026_Uwharrie River_A	7715266299	96460	Uwharrie River	0	102
T38817	3117	SUMNER RD	27370	315026	A	315026_Uwharrie River_A	7715266299	96460	Uwharrie River	0	102
X38825	3121	SUMNER RD	27370	315026	A	315026_Uwharrie River_A	7715266299	96460	Uwharrie River	0	102
X38827	3123	SUMNER RD	27370	315026	A	315026_Uwharrie River_A	7715266299	96460	Uwharrie River	0	102
T37833	3141	SUMNER RD	27370	315026	A	315026_Uwharrie River_A	7715267660	108290	Uwharrie River	0	101
P62194	4940	FAIRVIEW CHURCH RD	27370	315026	A	315026_Uwharrie River_A	7716866625	11040	Uwharrie River	0	101
P72103	5050	ROBBINS CTRY RD	27370	315026	A	315026_Uwharrie River_A	7717907285	62200	Uwharrie River	0	101
P614329	726	W KIVETT ST	27203	301001	A	301001_Cedar Fork Creek_A	7751409826	70170	Cedar Fork Creek	1	101

P615245	511	UWHARRIE ST	27203	301001	A	301001_Cedar Fork Creek_A	7751407977	29380	Cedar Fork Creek	1	101
P639841	735	HOLLY ST	27203	301001	A	301001_Cedar Fork Creek_A	7751418091	44420	Cedar Fork Creek	1	101
P615286	736	HOLLY ST	27203	301001	A	301001_Cedar Fork Creek_A	7751418220	39340	Cedar Fork Creek	1	101
P614353	728	HOLLY ST	27203	301001	A	301001_Cedar Fork Creek_A	7751419295	39270	Cedar Fork Creek	1	101
P614352	730	HOLLY ST	27203	301001	A	301001_Cedar Fork Creek_A	7751419235	51970	Cedar Fork Creek	1	101
P615277	415	UWHARRIE ST	27203	301001	A	301001_Cedar Fork Creek_A	7751418352	39440	Cedar Fork Creek	1	101
P615269	812	OCCONEECHEE AVE	27203	301001	A	301001_Cedar Fork Creek_A	7751416209	20060	Cedar Fork Creek	1	101
P615270	414	UWHARRIE ST	27203	301001	A	301001_Cedar Fork Creek_A	7751416383	25120	Cedar Fork Creek	1	101
P615278	409	UWHARRIE ST	27203	301001	A	301001_Cedar Fork Creek_A	7751418379	21460	Cedar Fork Creek	1	101
P615271	406	UWHARRIE ST	27203	301001	A	301001_Cedar Fork Creek_A	7751416493	30290	Cedar Fork Creek	1	101
P615396	309	FARMER RD	27203	301001	A	301001_Cedar Fork Creek_A	7751324022	82370	Cedar Fork Creek	1	101
P613883	430	GLENWOOD RD	27203	302012	A7	302012_Penwood Branch_A7	7751908799	125090	Penwood Branch	1	101
P613884	412	GLENWOOD RD	27203	302012	A7	302012_Penwood Branch_A7	7751909958	70230	Penwood Branch	1	101
P614039	344	LINDLEY AVE	27203	302012	A7	302012_Penwood Branch_A7	7751918115	48860	Penwood Branch	1	101
P614038	342	LINDLEY AVE	27203	302012	A7	302012_Penwood Branch_A7	7751917127	62920	Penwood Branch	1	101
C619032	122	S RANDOLPH AVE	27203	302012	A7	302012_Penwood Branch_A7	7761026136	48430	Penwood Branch	1	103
P617666	422	WORTH ST	27203	302012	A7	302012_Penwood Branch_A7	7761026306	99040	Penwood Branch	1	101
P617662	419	WORTH ST	27203	302012	A7	302012_Penwood Branch_A7	7761026537	64990	Penwood Branch	1	101
P619079	120	N ELM ST	27203	302012	A7	302012_Penwood Branch_A7	7761025708	34620	Penwood Branch	1	101
P619078	126	N ELM ST	27203	302012	A7	302012_Penwood Branch_A7	7761025814	46520	Penwood Branch	1	101
P617519	410	E SALISBURY ST	27203	302012	A7	302012_Penwood Branch_A7	7761026933	39600	Penwood Branch	1	332
P615740	954	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750988316	49620	Penwood Branch	1	101
P615739	946	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750988425	85040	Penwood Branch	1	101
P614766	932	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750988646	66900	Penwood Branch	1	101
P614765	928	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750988743	78390	Penwood Branch	1	101
P614764	918	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750988852	68160	Penwood Branch	1	101
X614762	904	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750988952	85920	Penwood Branch	1	102
X614763	906	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750988952	85920	Penwood Branch	1	102
P614761	902	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750998041	58860	Penwood Branch	1	101
P614752	830	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7750998145	49190	Penwood Branch	1	101
P613376	444	MAPLE AVE	27203	302013	A7	302013_Penwood Branch_A7	7760091497	78150	Penwood Branch	1	101
P628840	815	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7760090339	0	Penwood Branch	1	697
X613423	715	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7760090645	49390	Penwood Branch	1	102
X613424	717	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7760090645	49390	Penwood Branch	1	102
P613377	443	MAPLE AVE	27203	302013	A7	302013_Penwood Branch_A7	7760091687	85820	Penwood Branch	1	101
P613422	705	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7760090754	35920	Penwood Branch	1	101
P613421	703	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7760090749	39860	Penwood Branch	1	101
P613410	448	SILVER AVE	27203	302013	A7	302013_Penwood Branch_A7	7760092830	40850	Penwood Branch	1	101
P613412	447	SILVER AVE	27203	302013	A7	302013_Penwood Branch_A7	7761002002	93070	Penwood Branch	1	101
P619112	448	E KIVETT ST	27203	302013	A7	302013_Penwood Branch_A7	7761001226	110920	Penwood Branch	1	101
P619117	447	E KIVETT ST	27203	302013	A7	302013_Penwood Branch_A7	7761001437	111190	Penwood Branch	1	101
P619071	507	GLENWOOD RD	27203	302013	A7	302013_Penwood Branch_A7	7761001636	136770	Penwood Branch	1	101
P619959	1765	PINE GROVE DR	27205	302021	A3	302021_Vestal Creek_A3	7760139970	65280	Vestal Creek	1	101
P619950	1741	PINE GROVE DR	27205	302021	A3	302021_Vestal Creek_A3	7760240110	91940	Vestal Creek	1	101
P619972	805	SALEM CT	27205	302021	A3	302021_Vestal Creek_A3	7760145058	87940	Vestal Creek	1	101
P619971	803	SALEM CT	27205	302021	A3	302021_Vestal Creek_A3	7760144210	83980	Vestal Creek	1	101
P619949	1734	PINE GROVE DR	27205	302021	A3	302021_Vestal Creek_A3	7760146252	93680	Vestal Creek	1	101
M640811	2230	N FAYETTEVILLE ST	27203	303011	A7	303011_Haskett Creek_A7	7763133682	1451420	Haskett Creek	1	211
L646166	1324	RIDGEWOOD CIR	27203	303011	A7	303011_Penwood Branch_A7	7762648237	0	Penwood Branch	1	100
P621351	919	DRAPER ST	27203	303011	A7	303011_Penwood Branch_A7	7762573909	0	Penwood Branch	1	320

P617517	401	E SALISBURY ST	27203	303021	A7	303021_Penwood Branch_A7	7761036107	73210	Penwood Branch	1	348
P617295	214	N ELM ST	27203	303021	A7	303021_Penwood Branch_A7	7761035269	70080	Penwood Branch	1	373
X617327	229	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037457	497650	Penwood Branch	1	608
X617328	227	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037457	497650	Penwood Branch	1	608
C617329	223	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037457	497650	Penwood Branch	1	608
C617330	221	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037457	497650	Penwood Branch	1	608
C617331	219	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037457	497650	Penwood Branch	1	608
C617332	217	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037457	497650	Penwood Branch	1	608
X617296	256	N ELM ST	27203	303021	A7	303021_Penwood Branch_A7	7761036800	36380	Penwood Branch	1	102
X617297	254	N ELM ST	27203	303021	A7	303021_Penwood Branch_A7	7761036800	36380	Penwood Branch	1	102
C617319	315	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037961	204350	Penwood Branch	1	608
C617320	313	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037961	204350	Penwood Branch	1	608
C617321	311	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037961	204350	Penwood Branch	1	608
C617322	309	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761037961	204350	Penwood Branch	1	608
X617262	316	N ELM ST	27203	303021	A7	303021_Penwood Branch_A7	7761046006	37520	Penwood Branch	1	102
P617317	327	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761047180	45480	Penwood Branch	1	101
P617309	419	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761048660	31640	Penwood Branch	1	101
P617308	423	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761048686	39440	Penwood Branch	1	101
C617304	433	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761049706	135720	Penwood Branch	1	608
C617305	431	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761049706	135720	Penwood Branch	1	608
C617306	429	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761049706	135720	Penwood Branch	1	608
C617307	427	DUNLAP ST	27203	303021	A7	303021_Penwood Branch_A7	7761049706	135720	Penwood Branch	1	608
X617300	420	BREWER ST	27203	303021	A7	303021_Penwood Branch_A7	7761047529	171740	Penwood Branch	1	102
X617301	420	BREWER ST	27203	303021	A7	303021_Penwood Branch_A7	7761047529	171740	Penwood Branch	1	102
P613059	503	WATKINS ST	27203	303021	A7	303021_Penwood Branch_A7	7761150064	20160	Penwood Branch	1	101
P612749	510	MEADOWBROOK RD	27203	303021	A7	303021_Penwood Branch_A7	7761059034	49020	Penwood Branch	1	101
P612750	516	MEADOWBROOK RD	27203	303021	A7	303021_Penwood Branch_A7	7761150210	47250	Penwood Branch	1	101
P613060	507	WATKINS ST	27203	303021	A7	303021_Penwood Branch_A7	7761151121	20160	Penwood Branch	1	101
P612793	587	VANCE ST	27203	303021	A7	303021_Penwood Branch_A7	7761153559	28390	Penwood Branch	1	101
P612792	583	VANCE ST	27203	303021	A7	303021_Penwood Branch_A7	7761152660	22260	Penwood Branch	1	101
P638170	617	GLOVINIA ST	27203	303021	A7	303021_Penwood Branch_A7	7761353745	14060	Penwood Branch	1	101
P612853	522	E PRESNELL ST	27203	303021	A7	303021_Penwood Branch_A7	7761152797	55580	Penwood Branch	1	101
P612789	525	E PRESNELL ST	27203	303021	A7	303021_Penwood Branch_A7	7761163031	45990	Penwood Branch	1	101
P612787	509	E PRESNELL ST	27203	303021	A7	303021_Penwood Branch_A7	7761161092	40560	Penwood Branch	1	101
P613027	617	PENNWOOD DR	27203	303021	A7	303021_Penwood Branch_A7	7761164115	61230	Penwood Branch	1	101
P613026	623	PENNWOOD DR	27203	303021	A7	303021_Penwood Branch_A7	7761164362	60010	Penwood Branch	1	101
C612921	703	TABOR CT	27203	303021	A7	303021_Penwood Branch_A7	7761263503	0	Penwood Branch	1	608
P616548	1817	YORKTOWN LN	27203	304001	A7	304001_Haskett Creek_A7	7752982203	49320	Haskett Creek	1	101
P616549	1823	YORKTOWN LN	27203	304001	A7	304001_Haskett Creek_A7	7752982354	22020	Haskett Creek	1	101
X616631	422	W BAILEY ST	27203	304001	A7	304001_Haskett Creek_A7	7752768792	393950	Haskett Creek	1	397
P616547	1809	YORKTOWN LN	27203	304001	A7	304001_Haskett Creek_A7	7752981057	72450	Haskett Creek	1	101
X630550	1819	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752889479	89570	Haskett Creek	1	102
X630551	1819	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752889479	89570	Haskett Creek	1	102
X630552	1825	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752888541	95740	Haskett Creek	1	102
X630553	1825	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752888541	95740	Haskett Creek	1	102
X630549	1814	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752980548	96270	Haskett Creek	1	102
X630548	1814	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752980548	96270	Haskett Creek	1	102
X630547	1818	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752980637	92440	Haskett Creek	1	102
X630546	1818	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752980637	92440	Haskett Creek	1	102
P645090	1852	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752980725	72150	Haskett Creek	1	101

P647825	1854	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752980778	0	Haskett Creek	1	100	
P616488	1850	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752889871	69900	Haskett Creek	1	101	
P645088	1853	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752980909	71630	Haskett Creek	1	101	
P645089	1855	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752990061	71040	Haskett Creek	1	101	
P647824	1857	SADDLEWOOD CT	27203	304001	A7	304001_Haskett Creek_A7	7752991062	0	Haskett Creek	1	100	
P618955	317	W CENTRAL AVE	27203	304001	A7	304001_Haskett Creek_A7	7753900101	563200	Haskett Creek	1	353	
X618956	2051	CHAMPAGNE DR	27203	304001	A7	304001_Haskett Creek_A7	7753917650	228710	Haskett Creek	1	421	
X618957	2051	CHAMPAGNE DR	27203	304001	A7	304001_Haskett Creek_A7	7753917650	228710	Haskett Creek	1	421	
P618928	217	GREENVALE RD	27203	304001	A7	304001_Haskett Creek_A7	7753928518	70000	Haskett Creek	1	101	
P618927	221	GREENVALE RD	27203	304001	A7	304001_Haskett Creek_A7	7753927509	36200	Haskett Creek	1	101	
P618929	218	GREENVALE RD	27203	304001	A7	304001_Haskett Creek_A7	7753927854	74740	Haskett Creek	1	101	
P618930	226	GREENVALE RD	27203	304001	A7	304001_Haskett Creek_A7	7753925865	59940	Haskett Creek	1	101	
T620467	287	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620468	286	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620469	285	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620470	284	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620471	283	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620472	282	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620473	281	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620841	280	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620842	279	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620843	278	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620920	289	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
T620921	288	CREEKSIDE DR	27203	304001	A7	304001_Haskett Creek_A7	7753948156	1814350	Haskett Creek	1	213	
X631149	311	MCKNIGHT ST	27203	304001	A7	304001_Haskett Creek_A7	7753866465	91410	Haskett Creek	1	102	
P30719	1538	SYLVAN WAY	27205	305021	A	305021_Back Creek_A	7742557544	479150	Back Creek	1	101	
P615571	1453	ROLLING RD	27205	305021	A	305021_Cedar Fork Creek_A	7751122658	0	Cedar Fork Creek	1		
P58377	1515	ROLLING RD	27205	305021	A	305021_Cedar Fork Creek_A	7751029921	109620	Cedar Fork Creek	1	101	
P57100	1087	LITTLE LAKES TRL	27205	305021	A	305021_Cedar Fork Creek_A	7742503455	0	Cedar Fork Creek	1		
P30729	1273	CEDAR CREEK DR	27205	305021	A	305021_Cedar Fork Creek_A	7741599670	193140	Cedar Fork Creek	1	101	
P43290	1616	PINE HILL RD	27205	308011	A3	308011_Vestal Creek_A3	7669857878	131440	Vestal Creek	1	101	
T43278	1254	COPPERHEAD RD	27205	308011	A3	308011_Vestal Creek_A3	7669799228	0	Vestal Creek	1	100	
T43280	1252	COPPERHEAD RD	27205	308011	A3	308011_Vestal Creek_A3	7669797217	400	Vestal Creek	1	108	
P72178	6113	PINEBROOK DR	27263	315022	A	315022_Muddy Creek_A	7728341524	54940	Muddy Creek	2	101	
P609930	4228	HUFF RD	27263	315022	A	315022_Muddy Creek_A	7728167781	86190	Muddy Creek	2	101	
P609929	4226	HUFF RD	27263	315022	A	315022_Muddy Creek_A	7728166770	87480	Muddy Creek	2	101	
L628390	6150	WEANT RD	27263	315022	A	315022_Muddy Creek_A	7728525970	0	Muddy Creek	2	100	
P72154	3874	WOOD AVE	27263	315022	A	315022_Muddy Creek_A	7728242796	71760	Muddy Creek	2	101	
P72410	5997	ASHBROOK CIR	27263	315022	A	315022_Muddy Creek_A	7728340912	108220	Muddy Creek	2	101	
P72408	5987	ASHBROOK CIR	27263	315022	A	315022_Muddy Creek_A	7728248959	91890	Muddy Creek	2	101	
P638481	1216	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728252329	157130	Muddy Creek	2	101	
P638203	1214	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728251498	214080	Muddy Creek	2	101	
P638736	1210	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728251621	168720	Muddy Creek	2	101	
P638482	1208	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728250689	139740	Muddy Creek	2	101	
P644495	107	ANNA CT	27263	315022	A	315022_Muddy Creek_A	7728154734	182510	Muddy Creek	2	101	
P638569	1206	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728250767	159260	Muddy Creek	2	101	
P643735	105	ANNA CT	27263	315022	A	315022_Muddy Creek_A	7728155870	176230	Muddy Creek	2	101	
P642777	1204	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728250835	160860	Muddy Creek	2	101	
P639295	1202	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728250916	173830	Muddy Creek	2	101	
P644516	1110	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728260110	147680	Muddy Creek	2	101	

P642184	1107	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728262128	166380	Muddy Creek	2	101
P641054	1108	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728260119	163900	Muddy Creek	2	101
P641131	1105	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728262227	132080	Muddy Creek	2	101
P642596	1106	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728260217	176720	Muddy Creek	2	101
P645113	1104	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728260315	139740	Muddy Creek	2	101
P609853	226	ALDRIDGE LN	27263	315022	A	315022_Muddy Creek_A	7728166351	96560	Muddy Creek	2	101
P629215	228	ALDRIDGE LN	27263	315022	A	315022_Muddy Creek_A	7728167360	100710	Muddy Creek	2	101
P641616	1102	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728260413	176460	Muddy Creek	2	101
P641531	1008	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728260512	161860	Muddy Creek	2	101
P609854	227	ALDRIDGE LN	27263	315022	A	315022_Muddy Creek_A	7728167583	100160	Muddy Creek	2	101
P609855	225	ALDRIDGE LN	27263	315022	A	315022_Muddy Creek_A	7728166563	79830	Muddy Creek	2	101
P638378	1006	DOGWOOD LN	27263	315022	A	315022_Muddy Creek_A	7728260610	159840	Muddy Creek	2	101
P631913	126	HOPE VALLEY DR	27263	315022	A	315022_Muddy Creek_A	7728180486	134750	Muddy Creek	2	101
P641700	127	HOPE VALLEY RD	27263	315022	A	315022_Muddy Creek_A	7728181881	119540	Muddy Creek	2	101
P629323	204	SIMMONS CREEK CT	27263	315022	A	315022_Muddy Creek_A	7728084716	116730	Muddy Creek	2	101
P642024	125	HOPE VALLEY RD	27263	315022	A	315022_Muddy Creek_A	7728180970	139540	Muddy Creek	2	101
P643565	123	HOPE VALLEY DR	27263	315022	A	315022_Muddy Creek_A	7728089911	167330	Muddy Creek	2	101
P637751	119	HOPE VALLEY RD	27263	315022	A	315022_Muddy Creek_A	7728085848	103550	Muddy Creek	2	101
P610252	4801	ROBY DR	27263	315023	A	315023_Muddy Creek_A	7718908501	100190	Muddy Creek	2	101
P609987	204	GREGG ST	27263	315023	A	315023_Muddy Creek_A	7728009505	85020	Muddy Creek	2	101
P609986	202	GREGG ST	27263	315023	A	315023_Muddy Creek_A	7728009645	84980	Muddy Creek	2	101
P609967	4818	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728007637	93940	Muddy Creek	2	101
P609984	200	GREGG ST	27263	315023	A	315023_Muddy Creek_A	7728009779	70120	Muddy Creek	2	101
P609968	4820	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728008727	65940	Muddy Creek	2	101
P610013	110	SHEAN DR	27263	315023	A	315023_Muddy Creek_A	7728106864	94380	Muddy Creek	2	101
P609962	5005	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728104866	41920	Muddy Creek	2	101
P609961	5003	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728103869	74720	Muddy Creek	2	101
P646268	108	SHEAN DR	27263	315023	A	315023_Muddy Creek_A	7728106974	74890	Muddy Creek	2	101
P609960	5001	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728102953	49660	Muddy Creek	2	101
P609959	4903	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728101968	76250	Muddy Creek	2	101
P609955	4813	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728005936	87380	Muddy Creek	2	101
P609958	4901	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728110042	57150	Muddy Creek	2	101
P610015	106	SHEAN DR	27263	315023	A	315023_Muddy Creek_A	7728117004	76180	Muddy Creek	2	101
P609956	4825	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728017082	53330	Muddy Creek	2	101
P609957	4827	MACON DR	27263	315023	A	315023_Muddy Creek_A	7728019016	74770	Muddy Creek	2	101
T629123	104	SHEAN DR	27263	315023	A	315023_Muddy Creek_A	7728117271	0	Muddy Creek	2	100
P610082	116	LOCKHART ST	27263	315023	A	315023_Muddy Creek_A	7728017444	12580	Muddy Creek	2	101
P610081	118	LOCKHART ST	27263	315023	A	315023_Muddy Creek_A	7728016387	11970	Muddy Creek	2	101
P610219	4015	CHEYENNE DR	27263	315023	A	315023_Muddy Creek_A	7718717207	2070660	Muddy Creek	2	472
P610215	3901	CHEYENNE DR	27263	315023	A	315023_Muddy Creek_A	7718915711	3629220	Muddy Creek	2	397
P621581	504	AZTEC DR	27263	315023	A	315023_Muddy Creek_A	7718620205	240810	Muddy Creek	2	401
P641522	304	NAVAJO DR	27263	315023	A	315023_Muddy Creek_A	7718627315	602150	Muddy Creek	2	401
P610225	138	RENOLA DR	27263	315023	A	315023_Muddy Creek_A	7718729519	89760	Muddy Creek	2	101
P610313	109	SEMINOLE DR	27263	315023	A	315023_Muddy Creek_A	7718722644	543960	Muddy Creek	2	397
P626471	222	KINVIEW DR	27263	315023	A	315023_Muddy Creek_A	7718725826	108200	Muddy Creek	2	101
P643515	403	INTERSTATE DR	27263	315023	A	315023_Muddy Creek_A	7718527705	1133640	Muddy Creek	2	397
P609640	4209	BARRETT DR	27263	315023	A	315023_Muddy Creek_A	7718431175	67060	Muddy Creek	2	101
P609639	4208	BARRETT DR	27263	315023	A	315023_Muddy Creek_A	7718338111	71950	Muddy Creek	2	101
P609641	4207	BARRETT DR	27263	315023	A	315023_Muddy Creek_A	7718431285	55950	Muddy Creek	2	101
P609638	4206	BARRETT DR	27263	315023	A	315023_Muddy Creek_A	7718339230	71690	Muddy Creek	2	101

P609650	505	BALFOUR DR	27263	315023	A	315023_Muddy Creek_A	7718338303	66420	Muddy Creek	2	101
P609649	503	BALFOUR DR	27263	315023	A	315023_Muddy Creek_A	7718339307	94720	Muddy Creek	2	101
P609651	506	BALFOUR DR	27263	315032	A	315032_Muddy Creek_A	7718337526	67750	Muddy Creek	2	101
P609652	504	BALFOUR DR	27263	315032	A	315032_Muddy Creek_A	7718338611	87600	Muddy Creek	2	101
P637069	105	SCHOOL RD	27370	315032	A	315032_Muddy Creek_A	7718236638	92460	Muddy Creek	2	101
T610527	4207	ARCHDALE RD	27263	315032	A	315032_Muddy Creek_A	7718159662	0	Muddy Creek	2	108
T610528	4207	ARCHDALE RD	27263	315032	A	315032_Muddy Creek_A	7718159662	0	Muddy Creek	2	108
P610414	4205	ARCHDALE RD	27263	315032	A	315032_Muddy Creek_A	7718158759	0	Muddy Creek	2	108
P610413	4201	ARCHDALE RD	27263	315032	A	315032_Muddy Creek_A	7718157965	22890	Muddy Creek	2	101
C637473	800	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637474	802	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637475	804	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637476	806	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637477	808	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637478	818	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637479	816	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637480	814	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637481	812	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C637482	810	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071413	0	Muddy Creek	2	902
C632886	1210	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632887	1200	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632888	1212	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632889	1202	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632890	1214	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632891	1204	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632892	1216	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632893	1206	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632894	1218	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C632895	1208	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070537	0	Muddy Creek	2	902
C636101	1002	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071750	0	Muddy Creek	2	902
C636093	1010	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071750	0	Muddy Creek	2	902
C636095	1008	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071750	0	Muddy Creek	2	902
C636097	1006	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071750	0	Muddy Creek	2	902
C636099	1004	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718071750	0	Muddy Creek	2	902
C619725	710	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7708978611	0	Muddy Creek	2	902
C633744	1112	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070874	0	Muddy Creek	2	902
C633741	1100	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070874	0	Muddy Creek	2	902
C633740	1108	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070874	0	Muddy Creek	2	902
C633742	1110	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070874	0	Muddy Creek	2	902
C633746	1114	WEST BROOK CT	27263	315032	A	315032_Muddy Creek_A	7718070874	0	Muddy Creek	2	902
P641327	313	MEREDITH DR	27370	316021	A	316021_Muddy Creek_A	7708761737	126070	Muddy Creek	2	101
P611469	618	TRINDALE RD	27370	316021	A	316021_Muddy Creek_A	7708861008	74490	Muddy Creek	2	301
P641326	311	MEREDITH DR	27370	316021	A	316021_Muddy Creek_A	7708760921	103430	Muddy Creek	2	101
P611505	318	MEREDITH DR	27370	316021	A	316021_Muddy Creek_A	7708677071	59080	Muddy Creek	2	101
P611618	100	CLOVERDALE CT	27263	316021	A	316021_Muddy Creek_A	7708675132	39070	Muddy Creek	2	101
X611627	104	CLOVERDALE CT	27263	316021	A	316021_Muddy Creek_A	7708676119	34640	Muddy Creek	2	102
P611617	305	CLOVERDALE DR	27263	316021	A	316021_Muddy Creek_A	7708674357	38440	Muddy Creek	2	101
P611614	302	CLOVERDALE DR	27263	316021	A	316021_Muddy Creek_A	7708672450	32410	Muddy Creek	2	101
P611613	300	CLOVERDALE DR	27263	316021	A	316021_Muddy Creek_A	7708672573	75980	Muddy Creek	2	101
P611607	303	ROSEMARY ST	27263	316021	A	316021_Muddy Creek_A	7708672617	44610	Muddy Creek	2	101

P636378	305	ROSEMARY ST	27263	316021	A	316021_Muddy Creek_A	7708671628	22940	Muddy Creek	2	101
P611629	803	LAKE DR	27263	316021	A	316021_Muddy Creek_A	7708671879	44640	Muddy Creek	2	101
P611599	403	ARCHDALE BLVD	27263	316021	A	316021_Muddy Creek_A	7708681074	49660	Muddy Creek	2	101
P611598	500	ARCHDALE BLVD	27263	316021	A	316021_Muddy Creek_A	7708680257	72850	Muddy Creek	2	101
M61163€	703	LAKE DR	27263	316021	A	316021_Muddy Creek_A	7708682585	156700	Muddy Creek	2	211
P611634	701	LAKE DR	27263	316021	A	316021_Muddy Creek_A	7708683710	31150	Muddy Creek	2	101
P611540	604	LAKE DR	27263	316021	A	316021_Muddy Creek_A	7708683849	42280	Muddy Creek	2	101
P611633	606	LAKE DR	27263	316021	A	316021_Muddy Creek_A	7708682940	59680	Muddy Creek	2	101
C638932	102	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638933	104	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638934	106	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638935	108	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638936	110	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638937	112	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638938	114	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638939	116	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638940	202	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638941	204	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638942	206	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638943	208	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638944	210	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638945	212	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638947	216	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638946	214	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638958	218	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
C638959	220	TERRACE TRACE CT	27263	316021	A	316021_Muddy Creek_A	7708693375	1062330	Muddy Creek	2	211
P611662	720	VERTA AVE	27263	316021	A	316021_Muddy Creek_A	7708694762	35750	Muddy Creek	2	101
P611758	3106	CORINA CIR	27263	316021	A	316021_Muddy Creek_A	7709604291	55620	Muddy Creek	2	101
P611757	3108	CORINA CIR	27263	316021	A	316021_Muddy Creek_A	7709603262	67120	Muddy Creek	2	101
P9764	890	NC HWY 22 N	27248	310002	A4	310002_Sandy Creek_A4	7792863021	0	Sandy Creek	3	697
P21777	3059	CEDAR FALLS RD	27248	311002	A4	311002_Bush Creek_A4	7782895850	25140	Bush Creek	3	101
P600647	851	W MAIN ST	27248	311003	A4	311003_Bush Creek_A4	7792075324	75090	Bush Creek	3	101
P500035	3060	CEDAR FALLS RD	27248	311003	A4	311003_Bush Creek_A4	7782896544	87840	Bush Creek	3	105
P10526	117	SUMNER PL	27248	311003	A4	311003_DEEP RIVER_A4	7792368231	42840	DEEP RIVER	3	101
P10492	323	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792361361	40980	DEEP RIVER	3	101
P10483	123	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792463325	22810	DEEP RIVER	3	101
P10485	129	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792462356	22700	DEEP RIVER	3	101
P10489	321	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792363301	29680	DEEP RIVER	3	101
P10474	310	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792364540	52130	DEEP RIVER	3	101
P10472	324	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792362571	94570	DEEP RIVER	3	348
P624008	406	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792362571	94570	DEEP RIVER	3	348
P24545	408	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792362722	59390	DEEP RIVER	3	697
P10470	426	W MAIN ST	27248	311003	A4	311003_DEEP RIVER_A4	7792360652	44980	DEEP RIVER	3	101
P10805	339	WALNUT ST	27248	311003	A4	311003_DEEP RIVER_A4	7792361878	27770	DEEP RIVER	3	101
P10793	329	LINDLEY ST	27248	311003	A4	311003_DEEP RIVER_A4	7792372253	2400	DEEP RIVER	3	101
T10795	331	LINDLEY ST	27248	311003	A4	311003_DEEP RIVER_A4	7792370296	0	DEEP RIVER	3	108
P10797	332	LINDLEY ST	27248	311003	A4	311003_DEEP RIVER_A4	7792372674	44320	DEEP RIVER	3	101
T634465	4622	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
P11021	592	FAITH ROCK RD	27248	311004	A4	311004_DEEP RIVER_A4	7792459002	25670	DEEP RIVER	3	101
M11023	608	FAITH ROCK RD	27248	311004	A4	311004_DEEP RIVER_A4	7792458240	10000	DEEP RIVER	3	108

P11019	638	FAITH ROCK RD	27248	311004	A4	311004_DEEP RIVER_A4	7792456443	36800	DEEP RIVER	3	101
T603850	558	FAITH ROCK RD	27248	311004	A4	311004_DEEP RIVER_A4	7792553115	880	DEEP RIVER	3	108
P11017	644	FAITH ROCK RD	27248	311004	A4	311004_DEEP RIVER_A4	7792453517	61020	DEEP RIVER	3	101
P632095	1264	ANDREW HUNTER RD	27248	311004	A4	311004_DEEP RIVER_A4	7792252925	0	DEEP RIVER	3	300
P603317	1306	ANDREW HUNTER RD	27248	311004	A4	311004_DEEP RIVER_A4	7792267079	93160	DEEP RIVER	3	602
P604391	1295	ANDREW HUNTER RD	27248	311004	A4	311004_DEEP RIVER_A4	7792263207	28680	DEEP RIVER	3	398
T629682	3798	DOVE VIEW ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
T634364	4605	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
L634460	4602	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
L634461	4604	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
L634466	4628	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
L634468	4640	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
T634469	4644	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
T634470	4650	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
L634471	4654	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
L634472	4660	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
L634473	4668	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
T634462	4606	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
T634467	4632	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
T634475	4678	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
T634474	4672	OGLES CREEK ST	27316	311004	A4	311004_DEEP RIVER_A4	7792728428	1092730	DEEP RIVER	3	213
P24492	1289	ANDREW HUNTER RD	27248	311004	A4	311004_DEEP RIVER_A4	7782964305	84750	DEEP RIVER	3	332
L646039	5023	REEK CREEK CT	27316	310004	A4	310004_Reed Creek_A4	8702902980	0	Reed Creek	5	100
P605605	1115	WILLIAMS ST	27316	310005	A4	310005_DEEP RIVER_A4	8701697851	26410	DEEP RIVER	5	101
P604858	1366	SALISBURY ST	27316	310005	A4	310005_DEEP RIVER_A4	8702610378	43010	DEEP RIVER	5	101
P605618	1539	MAIN ST	27316	310005	A4	310005_DEEP RIVER_A4	8702512528	71380	DEEP RIVER	5	472
P644253	2000	BROOKLYN AVE	27316	310005	A4	310005_DEEP RIVER_A4	8702515726	22940	DEEP RIVER	5	398
P643486	212	RIVER PARK RD EXT	27317	314001	A	314001_DEEP RIVER_A	7764884355	61660	DEEP RIVER	6	101
P643487	213	RIVER PARK DR EXT	27317	314001	A	314001_DEEP RIVER_A	7764883449	61830	DEEP RIVER	6	101
P606862	109	CARLISLE AVE	27317	314001	A	314001_DEEP RIVER_A	7765066257	47730	DEEP RIVER	6	101
P26466	4509	OLD WALKER MILL RD EXT	27317	314001	A	314001_DEEP RIVER_A	7765184845	136430	DEEP RIVER	6	101
T21293	3711	CEDAR SPRINGS RD	27317	314001	A	314001_Polecat Creek_A	7775042159	7000	Polecat Creek	6	109
P26368	3865	CEDAR SPRINGS RD	27317	314001	A	314001_Polecat Creek_A	7765849848	45400	Polecat Creek	6	101
P639743	3772	STEEPLEGATE DR	27370	315011	A	315011_Little Uwharrie River_A	6796184582	302090	Little Uwharrie River	11	101
P623839	7104	CHAPSWORTH DR	27370	315011	A	315011_Little Uwharrie River_A	6796196006	231180	Little Uwharrie River	11	101
P621841	7130	CHAPSWORTH DR	27370	315011	A	315011_Little Uwharrie River_A	6796194120	216560	Little Uwharrie River	11	101
P69689	7206	LANSDOWNE PL	27360	315011	A	315011_Little Uwharrie River_A	6797018555	71740	Little Uwharrie River	11	101
P69687	7216	LANSDOWNE PL	27360	315011	A	315011_Little Uwharrie River_A	6797018635	112920	Little Uwharrie River	11	101
P69685	7232	LANSDOWNE PL	27360	315011	A	315011_Little Uwharrie River_A	6797017892	73080	Little Uwharrie River	11	101
P69683	7236	LANSDOWNE PL	27360	315011	A	315011_Little Uwharrie River_A	6797017986	61150	Little Uwharrie River	11	101
P65605	4408	NC HWY 62	27360	315011	A	315011_Little Uwharrie River_A	6797025237	99480	Little Uwharrie River	11	101
P604319	4941	FINCH FARM RD	27370	315011	A	315011_Little Uwharrie River_A	6796246810	439730	Little Uwharrie River	11	101
P625119	3568	CARRIAGE PL	27370	315011	A	315011_Little Uwharrie River_A	6796362462	252990	Little Uwharrie River	11	101
P641725	3610	STEEPLEGATE DR	27370	315011	A	315011_Little Uwharrie River_A	6796173681	308180	Little Uwharrie River	11	101
P608750	3621	STEEPLEGATE DR	27370	315011	A	315011_Little Uwharrie River_A	6796079557	337870	Little Uwharrie River	11	101
P647217	7119	BELMONT DR	27370	315011	A	315011_Little Uwharrie River_A	6796078514	0	Little Uwharrie River	11	100
P632866	3626	STEEPLEGATE DR	27370	315011	A	315011_Little Uwharrie River_A	6796173708	328990	Little Uwharrie River	11	101
P625678	3730	STEEPLEGATE DR	27370	315011	A	315011_Little Uwharrie River_A	6796183101	384850	Little Uwharrie River	11	101
P642779	3764	STEEPLEGATE DR	27370	315011	A	315011_Little Uwharrie River_A	6796184303	229610	Little Uwharrie River	11	101
P613802	3773	STEEPLEGATE DR	27370	315011	A	315011_Little Uwharrie River_A	6796180469	266080	Little Uwharrie River	11	101

P69838	5719	WAGONER RD	27370	315011	A	315011_Uwharrie River_A	7707454478	61710	Uwharrie River	11	101
P66449	5740	HOPEWELL CHURCH RD	27370	315011	A	315011_Uwharrie River_A	7707263538	581690	Uwharrie River	11	332
P69051	3679	MEADOWBROOK DR	27370	315011	A	315011_Uwharrie River_A	7706739980	0	Uwharrie River	11	108
P69049	3693	MEADOWBROOK DR	27370	315011	A	315011_Uwharrie River_A	7706749081	5320	Uwharrie River	11	108
P622237	3724	RED FOX RD	27370	315011	A	315011_Uwharrie River_A	6796966632	105790	Uwharrie River	11	101
P68859	3752	RED FOX RD	27370	315011	A	315011_Uwharrie River_A	6796967900	120810	Uwharrie River	11	101
P68857	3762	RED FOX RD	27370	315011	A	315011_Uwharrie River_A	6796977017	0	Uwharrie River	11	100
P68855	3778	RED FOX RD	27370	315011	A	315011_Uwharrie River_A	6796977127	95210	Uwharrie River	11	101
P68803	3771	RED FOX RD	27370	315011	A	315011_Uwharrie River_A	6796974147	95580	Uwharrie River	11	101
P68883	3858	ROCK DAM CT	27370	315011	A	315011_Uwharrie River_A	6796971183	133370	Uwharrie River	11	101
P68801	3781	RED FOX RD	27370	315011	A	315011_Uwharrie River_A	6796974257	103900	Uwharrie River	11	101
P68843	3927	CARRIAGE HOUSE CIR	27370	315011	A	315011_Uwharrie River_A	6796972338	123140	Uwharrie River	11	101
P68873	3879	ROCK DAM CT	27370	315011	A	315011_Uwharrie River_A	6796878438	123830	Uwharrie River	11	101
P68841	3977	CARRIAGE HOUSE CIR	27370	315011	A	315011_Uwharrie River_A	6796879887	122030	Uwharrie River	11	101
P68839	4009	CARRIAGE HOUSE CIR	27370	315011	A	315011_Uwharrie River_A	6796980261	98910	Uwharrie River	11	101
P66419	6300	NC HWY 62	27370	315025	A	315025_Uwharrie River_A	7707373461	161920	Uwharrie River	11	101
P70563	5913	MENDENHALL RD	27263	316011	A	316011_Uwharrie River_A	7708122937	101600	Uwharrie River	11	101
P65752	6982	KINGSTON RD	27360	316013	A	316013_Little Uwharrie River_A	6797130376	105050	Little Uwharrie River	11	101
P65730	4409	MEADOWBROOK VIEW RD	27360	316013	A	316013_Little Uwharrie River_A	6797132540	57140	Little Uwharrie River	11	101
P65595	4411	NC HWY 62	27360	316013	A	316013_Little Uwharrie River_A	6797024479	87330	Little Uwharrie River	11	101
P65780	4226	BRIARCLIFF RD	27360	316013	A	316013_Little Uwharrie River_A	6797025610	73670	Little Uwharrie River	11	101
P65736	6947	KINGSTON RD	27360	316013	A	316013_Little Uwharrie River_A	6797028939	74100	Little Uwharrie River	11	101
P65750	6958	KINGSTON RD	27360	316013	A	316013_Little Uwharrie River_A	6797130196	109390	Little Uwharrie River	11	101
P65754	6996	KINGSTON RD	27360	316013	A	316013_Little Uwharrie River_A	6797130624	100550	Little Uwharrie River	11	101
P69659	4406	KINGSTON CT	27360	316013	A	316013_Little Uwharrie River_A	6797039830	78830	Little Uwharrie River	11	101
P69657	4424	KINGSTON CT	27360	316013	A	316013_Little Uwharrie River_A	6797048012	64780	Little Uwharrie River	11	101
								$6,502,150.00			

Appendix H
Hazard Mitigation Strategies

The following is a strategy development worksheet with a comprehensive listing of all mitigation strategies under consideration by the County and all municipal jurisdictions.

Hazard	Project/activity	Comment
Multi-hazard	Employ a planner	In place
	Create planning department	In place
MH	If not already done, adopt: Zoning ordinance	In place
MH	Subdivision ordinance	In place
Flood	Flood prevention ordinance	Upgrading
Flood	Watershed protection ordinance	In place
MH	Land use plan	In place
MH	Growth Management Plan	In place
FL	Stormwater management plan	
MH	Update Emergency Operations Plan	Upgrading
MH	Review capital improvement plan to ensure capital improvements support mitigating activities and are not counter to hazard mitigation	Not accepted; education of public officials necessary to gain support
MH	Develop a section of Capital Improvement Plan devoted solely to hazard mitigation projects to allow for effective financial management of capital projects which have hazard mitigation ramifications	Will consider during next comprehensive review if future plan evaluation demonstrates need
Flood	Become National Flood Insurance Program Member	In place in all but Liberty, Seagrove, Trinity, Staley
MH	Develop GIS capability in municipalities/ or partner with County to use GIS resources:	Accepted
MH	Develop procedure for recording damage assessment information such as type of hazard, location of hazard occurrence, when it occurred, death or injury, property damaged, narrative description of damage (not just $value) for local use in hazard mitigation and land use planning.	Accepted
MH	Coordinate the collection and storage of the above information for easy retrieval	Accepted
MH	Develop recommendations for protecting	Accepted

Hazard	Project/activity	Comment
	command centers. Identify alternate command posts.	
FL	Address data limitations regarding lack of detailed information about individual structures located in floodplains and first floor elevations for priority areas.	Not accepted at this time. Will consider in the future. Understaffed and technology limitations
Drought	Develop emergency water supply capability	Accepted
Drought	Develop and adopt a drought management/water shortage (conservation) ordinance	Accepted
Flood	Identify all government facilities and buildings located in floodplains	Accepted
Flood	Protect government documents and critical information from flood damage by elevating all critical documents, records, files on upper floors of buildings or facilities in floodplains.	Accepted in Franklinville County and Municipalities do not have government facilities in flood plains.
Flood	Consider relocation of government buildings, facilities to outside of floodplain.	Not feasible. Cost prohibitive for Franklinville. Not applicable elsewhere.
Snow/ice	Adopt tree planting ordinances or programs and landscaping practices that encourage planting trees which are less susceptible to damage from ice storms *(For examples of tree ordinances: http://www.urbanforestrysouth.org/ordinances/index.asp)*	Under consideration in Randleman.
	Consider Urban Forestry Services development	Not considered feasible at this time. Political support, funding, and perceived need not there.
Snow /Ice/ High Wind	Programs for removal of poorer quality trees	Not feasible. Private Utility companies regularly do this.
	Plant trees away from utility lines and buildings	Encouraged in local ordinance
	Trim or otherwise clear power line areas	Utility responsibility
multihazard	Evaluate current capacity of critical services to deal with power outages Increase % of fire services with	Accepted

Hazard	Project/activity	Comment
	generators Increase % of emergency/rescue services with generators Does County Office building have/need generator? Other critical facilities in need of alternative power source Are Transfer switches needed	
	Install transfer switches	Funding not available; seeking funding source
High Wind	Consider sign ordinances limiting height or size of signs	Accepted in most jurisdictions
	Limit sign height in certain corridors	Accepted in County
High Wind Flood	Strengthen mobile home/manufactured homes regulations. Anchoring requirements strengthened and consistent across incorporated and unincorporated areas of Randolph County	Not accepted, jurisdictions regard their anchoring requirements as adequate.
Multi-hazard	Educate and inform local government and elected officials (decision makers) of the need to consider hazard mitigation in policy and budgetary planning and decision making processes	Accepted.
Flood	Design a public information/education program targeted to mobile home/manufactured home residents explaining hazards such as high wind events, flooding and alternative shelters in a storm/high wind event/ flood.	Accepted
	Develop outreach program/materials explaining flood hazards and risks to persons/property owners	Accepted by County
	Hold “Flood Hazard Awareness Week”	Accepted by County
	Disseminate information on the benefits of purchasing **flood insurance** to property owners in flood hazard areas	Accepted
	Incorporate stormwater-flooding awareness into flood hazard outreach program.	Accepted
Wildfire	Defensible space education for development in forested areas. Defensible space may be defined as an	Not a priority at this time

Hazard	Project/activity	Comment
	area around your home/structure (also outbuildings, drives, and roadways) that provides room for firefighters to safely fight the fire.	
Multi-hazard	Put in place a countywide 911 reverse call system for location specific warning to public of impending disaster	Accepted; seeking funding
	Evaluate access problems for critical services and responders.	Accepted
Snow/ Ice	Review and evaluate snow and ice removal plans for each city/county. Evaluate priority routes	Already in place
Dam Failure	Develop plans for the evacuation development downstream of high hazard dams with alerts and warnings systems in place, ▪ Prioritize as to population exposed to dam failure and inundation or ▪ As to condition of dam as reported in yearly inspection	Not feasible at this time due to excessive number of high hazard dams and lack of personnel and funding to do this. High Hazard Dams are inspected by Dam Safety Officials yearly. Reverse 911 system if implemented would be ideal early warning device for geographically specific area downstream of dams.
Dam Failure	Require emergency plans for high hazard dams to be filed with the local government.	Not feasible. Private dam owners are not required to do this. Such a program would require excessive staff time and money.
Flood	Require development of emergency evacuation plan in all mobile home parks substantially damage by flood events. Plans to be filed with city	In place
Flood	Require development of emergency evacuation plan in mobile home parks	Not feasible. Could not monitor or evaluate plans or be responsible for efficacy of plan
Multi-hazard	Identify vulnerable mobile home parks	Accepted
	Identify, upgrade, and map emergency shelters throughout county and municipalities.	Accepted.
	Identify and designate at least one emergency shelter in each municipality	Accepted
Flood	Develop storm water management programs to increase water quality and mitigate against storm water or urban flooding.	Required in Trinity, Archdale and parts of Randolph Co. Not feasible to create full program in other jurisdictions at this time.
	Storm Water Drainage Improvements:	Under the jurisdiction of NCDOT in

Hazard	Project/activity	Comment
	Design and implementation of storm water management systems.	unincorporated county.
	Develop program to clear debris from culverts and storm drains in flood prone areas.	Not accepted. NCDOT responsibility.
Wildfire	*Require* residents to create defensible space around structures. Modify the vegetation and other combustible materials to protect the structures from a future wildfire. The maintenance of the defensible space area must be continuous.	Not priority at this time.
High Wind/Ice/Snow	Through subdivision regulations, require that power, cable and telephone lines be buried	Accepted, written into ordinances as highly encouraged but not required. Some areas will not be able to bury lines do to geology, etc.
Flood/High Wind	Review and update building code standards for all structures, mobile homes, and manufactured homes to latest model (Jan 2003) North Carolina building codes/standards. Consistent standard across incorporated and unincorporated areas of Randolph County	Not necessary. Building Code standards are for structures to withstand winds of up to 90 mph which is adequate for this area.
Flood	Strengthen floodplain regulation to current standards. (New model regulation)	Accepted. Staley, Liberty, Seagrove, Trinity will adopt floodplain ordinance
Flood/high wind	Strengthen non-conforming uses ordinances: any structure existing before ordinance and located within floodplain can be repaired reconstructed or replace provided that the building or structures below base flood elevation is not increased.	Accepted
Dam Failure/Flood	Zoning ordinances or development regulations for areas down stream of high hazard dams. Look for model regulation for dam failure mitigation involving down stream development or dam construction.	Not feasible, but county looking for model regulation.
Multi-hazard	Designate preferred growth areas and develop area plans for target locations	No political motivation. Comprehensive land use plans seen as sufficient.
Multi-hazard	Update or develop comprehensive land	In place and updated.

Hazard	Project/activity	Comment
	use plan	
Multi-hazard	Require street interconnectivity in all new subdivision. To allow multiple access points for emergency vehicles	Not politically feasible in this area.
Multi-hazard	Consider additional vegetative buffering requirements beyond 50-foot buffer for large developments with extensive impervious surfaces.	Not politically feasible in this area.
Multi-hazard	Wherever possible preserve natural wetlands, designate conservation corridors, especially along streams through acquisition or conservation easements.	Accepted
Multi-hazard	Set up centralized, coordinated permitting process, including effective filing/permitting system to ensure compliance with floodplain regulations. Count building improvements cumulatively (maintain permit history so when cumulative improvement equal 50% of building value (substantial improvement) building must be brought up to flood protection standards for new construction.	Accepted by the County and will impact each jurisdiction.
Multi-hazard	Continued enforcement of all codes as they apply to protection from hazards. Especially for construction in flood prone areas so that all construction meets required flood protection measures. Ensure adequate follow up to insure compliance.	Accepted. Agree to make progress in this area.
Multi-hazard	Consider amending subdivision ordinance to allow clustering to maximize density while preserving high hazard areas (areas prone to landslide, flood, erosion)	Accepted.
Flood	Explore buyout programs for structures in known high hazard areas.	Not under consideration. If future data shows areas of repetitive damage, this option may be considered.